

# MONTHLY WEATHER REVIEW.

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**Climatological Data for August, 1909.**  
**DISTRICT No. 1, NORTH ATLANTIC STATES.**

WILFORD M. WILSON, District Editor.

**GENERAL CLIMATOLOGICAL CONDITIONS.**

The deficiency of precipitation that characterized the conditions of the preceding month continued throughout the month of August, 1909. Although heavy rains occurred along the Atlantic coast and over the coastal watershed the rainfall in the interior was extremely light and the droughty conditions that became manifest at the close of July continued to increase steadily especially over the Delaware and Susquehanna basins.

The month was generally cooler than usual in most parts of the district and killing frosts occurred in exposed localities in New England and New York.

**TEMPERATURE.**

The average temperature for the month of August for the district as a whole was below the normal. The deficiency was not so pronounced over parts of New England and New York as in Virginia and Delaware where it averaged about 2° per day. The relatively low average temperature can not be traced to the lack of sunshine for there was less cloudiness than usual and the midday temperatures were somewhat higher than the average, but was due directly to the decidedly cool nights that characterized the conditions throughout the month. The unusually low night temperatures may, in a measure at least, be attributed to the increased radiation resulting from the generally dry and cloudless state of the atmosphere during a large part of the month.

There were two well marked warm periods. The first occurred near the close of the first decade and was general over the district, the highest temperatures being generally recorded on the 8th and 9th. During this period temperatures of 100° or over were not uncommon especially in the central and southern parts of the district. At Addison, Steuben County, and Port Jervis, Orange County, N. Y. the maximum temperature reached 102° on the 8th and an equally high reading was observed at Lincoln, Loudoun County, Va. on the same date.

The second warm period occurred during the 24th and 25th, but while temperatures from 90° to 100° were quite general the heat was apparently not so intense as that of the preceding period.

While the night temperatures were uniformly low during the greater part of the month no remarkably cold weather occurred until the beginning of the third decade. Following a week of cool, cloudy weather that was general during the latter part of the second decade the weather cleared and a decided fall of temperature occurred. By the morning of the 22d the temperature had fallen to near the frost point in the more exposed localities of New England, New York, and Pennsylvania. Light frosts were reported from a few points, but the damage was slight.

The most notable cool period occurred on the 31st, when the lowest temperature of the month was recorded at nearly all stations except in the interior of Pennsylvania. Freezing temperatures occurred on this date in Maine, New Hampshire, Vermont, Massachusetts, and New York, the lowest being 20° at Indian Lake, Hamilton County, N. Y. Killing frosts were general in the central and northern parts of New England and in the Adirondack Mountains and over the eastern plateau of New York, and resulted in considerable damage.

**PRECIPITATION.**

The average precipitation for the district as a whole was 2.97 inches which is about 57 per cent of the normal. The geographical distribution was very uneven, the monthly amounts being generally much greater along the coast from Massachusetts southward to Virginia than in the interior. The uneven distribution was mostly due to the excessive rainfall that accom-

panied the storms that moved up the Atlantic coast (1) during the 4th and 5th and (2) from the 15 to the 17th. Heavy rains occurred with both storms especially over the coastal watershed of New Jersey, New York, and the southern part of New England, but the second storm was most severe and extended to a greater distance into the interior. The heaviest twenty-four-hour rainfall, 6.20 inches, occurred at Scarsdale, Westchester County, N. Y. on the 15th and 16th. This record is, however, closely followed by 6.15 inches at College Farm, New Brunswick County, N. J. Excessive precipitation, 2.50 inches or more in twenty-four hours, was reported from 4 stations in New England, 3 in Pennsylvania, 8 in New York, 21 in New Jersey, 4 in Delaware and Maryland, including the District of Columbia, and 1 in Virginia, nearly all of which, except those in Pennsylvania, are located on the coastal plain.

While there was a general shortage of precipitation, except along the coast as noted, the most important deficiency occurred over the Susquehanna and Delaware watershed, where the total rainfall for the month was only about one third of the normal amount. As a large part of southern New York and the whole of eastern Pennsylvania is included in these watersheds it will be seen that the deficiency which amounts to actual drought in many sections is very widespread. And when the deficiency for the month of August is added to an equal deficiency for the month of July it is easily understood that the conditions have become serious.

Mr. George S. Bliss, Section Director of the Climatological Service of the Weather Bureau for Pennsylvania makes the following statement:

In the Delaware Basin the August rainfall was less than one-third the normal amount, and was very unevenly distributed. As a result a few localities received moderately heavy rains, while in the greater portion of the basin the situation has become alarming. The average deficiency for the month was about 3.25 inches, making a total shortage since July 1 of nearly 6 inches or about 65 per cent. In other words, the Delaware Basin has received a little more than one-third the normal rainfall since July 1. In the north-central part of the State and in all districts east of the Susquehanna River, the streams are the lowest known for many years. In the Delaware Basin and all of the Susquehanna Basin, except a few southwestern counties and a few localities along the northern border, the observers nearly all agree that it has been the driest July and August within memory. Wells and springs are going dry and many people are compelled to haul water long distances. The ground in some places is dry to a depth of 4 feet or more, and the leaves of the trees are drying up and falling. The soil in some places has dried loose and dusty while in other places it is so hard as to render plowing impossible.

In most places east of the Susquehanna River the water for stock and household purposes is as low as at any time last fall. Berks County appears to be the center of the drought-stricken district. The situation, which became so serious and caused so much suffering in the western half of the State last year is being duplicated to an alarming extent in the eastern half of the State this year.

**RIVER CONDITIONS.**

The rivers and streams, especially in the interior of the district are at an unusually low stage, being as low or lower than at this time last fall. The gagings on the Delaware at Port Jervis, N. Y., ranged from 2.2 feet above the zero of the gage on the 19th to 1.0 feet on the 31st. At Phillipsburg the water stood at zero of the gage on 8 days, while the highest point reached during the month was 0.9 feet. At Harrisburg, on the Susquehanna, the readings ranged from 0.4 to 0.9 feet, which is lower than the readings for the same month last year when the highest was 1.6 feet and the lowest 0.7 feet. At Williamsport and Wilkes-Barre the gagings were also slightly lower than for August, 1908.

**MISCELLANEOUS.**

A hailstorm of considerable severity, but causing no great damage, occurred over the eastern part of New York on the 20th.



TABLE 1.—Climatological data for August, 1909. District No. 1, North Atlantic States.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Maine.																				
Bar Harbor	Hancock	20	23	64.8	+ 0.3	92	8	37	31	37	1.53	- 1.64	1.15	0.0	3	16	10	5	sw.	William Miller.
Cornish	York	778	54	66.6	+ 0.4	94	8	37	31	35	2.34	- 2.11	0.73	0.0	12	11	14	6	n.	T. H. West.
Eastport	Washington	53	37	60.2	+ 0.5	78	4	44	31	26	1.61	- 1.65	0.66	0.0	10	7	13	11	s.	U. S. Weather Bureau.
Fairfield	Somerset	90	24	66.4	+ 1.0	94	8	37	31	34	1.17	- 1.90	0.78	0.0	4	18	5	8	.....	E. F. Parker.
Farmington	Franklin	450	12	64.8	+ 0.1	96	8	33	31	38	2.60	- 1.30	0.80	0.0	11	14	9	8	nw.	State Normal School.
Gardiner	Kennebec	163	17	65.9	- 2.5	97	8	37	31	38	1.59	- 1.66	0.82	0.0	10	21	3	7	sw.	S. D. Soule.
Greenville	Piscataquis	1,000	7	60.6	.....	89	8	28	31	42	3.00	+ 0.67	0.86	0.0	14	.....	.....	.....	.....	U. S. Weather Bureau.
Houlton	Aroostook	362	7	64.2	.....	90	9	41	11	39	1.65	- 0.60	0.50	0.0	6	17	2	12	ne.	Bangor & Aroostook R.R.
Lewiston	Androscoggin	185	35	64.8	- 3.1	94	25	38	31	35	1.25	- 2.03	0.79	0.0	9	15	10	6	nw.	Union Water Power Co.
Madison	Somerset	257	6	66.0	.....	95	9	34	31	39	2.68	+ 0.42	1.55	0.0	7	23	2	6	nw.	Wm. Jardine.
Millinocket	Penobscot	386	6	66.0	.....	97	8	34	31	43	3.07	+ 0.16	1.14	0.0	10	9	12	10	nw.	H. S. Ferguson.
North Bridgton	Cumberland	450	16	67.6	+ 0.4	99	8	37	31	38	1.51	- 1.70	0.93	0.0	9	8	18	5	nw.	G. E. Chadbourne.
Orono	Penobscot	129	40	66.2	+ 0.7	97	8	30	31	43	1.82	- 1.32	1.24	0.0	8	15	9	7	nw.	Agricultural Exp. Stat'n.
Patten	Penobscot	550	7	63.5	.....	92	9	30	31	46	3.91	+ 1.32	1.24	0.0	9	10	3	9	w.	Bangor & Aroostook R.R.
Portland	Cumberland	99	38	66.2	- 0.0	94	25	45	31	32	1.68	- 1.89	1.12	0.0	6	16	7	8	nw.	U. S. Weather Bureau.
Rumford Falls	Oxford	505	16	64.8	- 0.9	92	8	37	31	33	1.79	- 1.31	0.90	0.0	9	19	8	4	nw.	Chas. A. Mixer, C. E.
Van Buren	Aroostook	510	7	64.2	.....	95	7	30	31	51	.....	.....	.....	0.0	8	18	1	7	w.	Bangor & Aroostook R.R.
Winslow	Kennebec	90	14	65.8	+ 0.1	96	8	32	31	42	1.76	- 0.18	0.85	0.0	7	15	12	4	w.	Hollingsworth & Whitney
New Hampshire.																				
Alstead Center	Cheshire	1,120	5	63.9	- 4.8	88	8	38	31	30	3.75	- 0.29	1.23	0.0	10	19	6	6	nw.	Frank Dewing.
Benton	.....	.....	.....	62.4	.....	86	8	36	31	30	3.06	.....	0.54	0.0	10	15	5	11	nw.	State Sanatorium.
Bethlehem	Grafton	1,470	17	62.1	- 2.1	88	8	33	31	34	3.24	- 0.59	0.90	0.0	11	15	10	6	nw.	Benj. Tucker.
Concord	Merrimack	350	49	65.6	- 1.0	94	8	36	31	34	2.85	- 0.89	1.33	0.0	8	13	12	6	w.	U. S. Weather Bureau.
Durham	Stafford	88	14	65.8	- 2.2	94	8	35	31	40	2.83	- 0.08	1.87	0.0	4	20	6	5	se.	Agricultural Exp. Stat'n.
Franklin	Merrimack	440	10	65.8	.....	94	8	34	31	38	1.86	- 1.08	0.78	0.0	8	20	7	4	w.	Dr. C. P. Webster.
Grafton	Grafton	863	23	62.6	- 2.1	92	25	28	31	42	1.79	- 1.91	0.63	0.0	7	19	7	5	w.	P. R. Kimball.
Hanover	Grafton	603	75	65.4	- 0.7	94	8	36	31	40	3.38	- 0.02	1.07	0.0	11	12	10	9	nw.	Dartmouth College.
Keene	Cheshire	506	24	69.8	+ 3.6	95	8	35	31	41	4.20	+ 0.02	1.34	0.0	10	14	12	5	nw.	Samuel D. Wadsworth.
Nashua	Hillsboro	125	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Jackson Company.	
Newton	Rockingham	21	64.3	- 2.7	93	8	34	31	36	3.38	+ 0.40	1.62	0.0	5	14	13	4	nw.	W. C. Gale.	
Plymouth	Grafton	500	21	63.4	- 2.3	92	8	34	31	42	1.60	- 2.50	0.46	0.0	7	19	3	9	w.	Mrs. H. G. Trow.
West Ossipee	Carroll	1	65.4	.....	.....	100	25	30	31	50	2.60	.....	1.00	0.0	5	27	0	4	s.	Camp Ossipee.
Vermont.																				
Bloomfield	Essex	2	62.4	.....	.....	91	8	31	31	41	2.05	.....	0.40	0.0	14	17	7	7	s.	Lyman Falls Co.
Cavendish	Windsor	910	6	63.4	.....	94	8	32	31	44	3.83	+ 0.81	1.50	0.0	6	17	5	4	n.	Miss M. A. Kingsbury.
Chelsea	Orange	1,640	14	61.1	- 2.8	85	8	33	31	31	2.96	- 0.37	1.00	0.0	10	16	4	11	n.	W. F. Dewey.
Jacksonville	Windham	1,000	24	63.0	- 0.1	89	8	31	31	45	3.90	- 0.12	1.25	0.0	9	21	5	5	nw.	Miss Martha French.
Manchester	Bennington	980	10	62.0	.....	84	8	40	31	31	3.32	- 0.61	0.90	0.0	8	13	13	5	sw.	N. M. Canfield.
St. Johnsbury	Caledonia	711	16	66.8	+ 2.4	100	8	33	31	54	2.47	- 1.58	0.64	0.0	12	20	2	9	n.	Fairbanks Museum.
Woodstock	Windsor	700	17	63.4	- 1.9	91	8	34	31	42	3.89	+ 0.50	1.64	0.0	5	10	9	12	.....	John S. Eaton.
Massachusetts.																				
Amherst	Hampshire	222	20	66.8	- 1.4	94	8	38	31	38	3.80	- 0.50	1.58	0.0	8	14	9	8	nw.	Agricultural Exp. Stat'n.
Blue Hill	Norfolk	640	25	67.4	0.0	93	8	47	31	27	4.22	+ 0.56	2.15	0.0	8	10	11	10	nw.	Blue Hill Observatory.
Boston	Suffolk	125	39	69.4	+ 0.5	94	8	50	31	26	3.55	- 0.48	2.25	0.0	8	12	12	7	w.	U. S. Weather Bureau.
Chestnut Hill	Suffolk	124	29	71.0	+ 1.4	98	26	41	31	35	4.11	- 0.17	2.72	0.0	6	23	0	8	.....	Metrop. Water Board.
Clinton	Worcester	370	13	65.7	.....	90	8	35	30	32	3.09	- 0.37	1.78	0.0	8	16	7	8	.....	Metrop. Water Board.
Concord	Middlesex	139	19	65.4	- 2.9	92	8	36	31	35	2.48	- 1.11	1.68	0.0	8	15	10	6	se.	F. A. Tower.
Fall River	Bristol	200	43	68.4	- 1.8	89	8	50	15	25	2.30	- 0.35	1.68	0.0	7	15	13	3	sw.	C. V. S. Remington.
Fitchburg	Worcester	550	26	67.4	- 0.9	94	8	38	31	33	3.08	- 1.32	1.13	0.0	7	19	5	7	w.	Dr. A. P. Mason.
Framingham	Middlesex	160	29	68.0	- 0.8	94	8	40	31	34	2.82	- 1.01	1.76	0.0	8	.....	.....	.....	.....	Metrop. Water Board.
Hyannis	Barnstable	31	18	67.0	- 4.3	90	8	45	31	26	2.26	- 0.67	1.94	0.0	5	23	3	5	sw.	C. F. Sleeper.
Lawrence	Essex	51	25	67.0	- 2.6	95	8	45	31	32	1.80	- 1.83	1.00	0.0	8	10	18	3	w.	Essex Company.
Lowell	Middlesex	100	24	69.4	0.0	95	8	40	31	33	2.46	- 1.88	0.79	0.0	5	.....	.....	.....	.....	Prop's. Locks and Canals.
Middleboro	Plymouth	53	23	64.6	- 2.9	91	8	36	31	36	2.37	- 1.27	1.30	0.0	8	8	11	12	ne.	A. R. Gurney.
Monson	Hampden	420	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. G. E. Fuller.
Nantucket	Nantucket	15	23	67.0	- 1.0	89	8	56	31	23	1.72	- 1.34	1.53	0.0	3	13	9	9	sw.	U. S. Weather Bureau.
New Bedford	Bristol	88	97	70.0	+ 1.7	90	8	54	15	24	.....	.....	.....	0.0	25	1	5	.....	.....	City Engineer.
Norfolk	Norfolk	244	6	65.8	.....	96	8	28	31	46	3.76	+ 1.08	1.55	0.0	5	21	6	4	w.	Miss Ruby H. Martyn.
Northampton	Hampshire	205	1	67.2	.....	90	8	39	31	41	4.82	.....	3.20	0.0	6	18	5	8	nw.	D. E. Hoxie.
Plymouth	Plymouth	24	24	65.6	.....	87	9	48	31	24	2.11	- 0.02	1.40	0.0	6	22	6	3	e.	Miss L. B. Knapp.
Provincetown	Barnstable	40	22	69.8	+ 0.6	96	8	53	31	31	1.80	- 1.11	1.19	0.0	5	27	0	4	ne.	Gideon Bowley.
Rockport	Essex	25	7	66.8	.....	95	25	55	2	31	2.55	+ 0.14	1.50	0.0	4	20	5	6	nw.	C. F. P. Bearse.
Rutland	Worcester	1,160	7	65.1	.....	91	8	46	30	32	4.11	+ 0.30	1.44	0.0	7	20	6	5	sw.	State Sanatorium.
South Egremont	Berkshire	764	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Roscoe C. Taft.
Turners Falls	Franklin	200	18	68.9	+ 1.3	91	8	47	31	27	4.53	+ 1.31	1.32	0.0	8	.....	.....	.....	.....	Turners Falls Co.
Westboro	Worcester	298	35	69.2	- 0.5	95	8	40	31	40	3.15	- 0.85	1.25	0.0	6	.....	.....	.....	.....	G. S. Newcomb.
Williamstown	Berkshire	711	28	64.8	- 0.5	87	8	42	22	34	5.37	+ 1.05	2.31	0.0	8	15	8	8	w.	Williams College.
Worcester	Worcester	518	17	68.2	- 0.7	92	8	47	31	27	2.29	- 0.86	0.84	0.0	9	14	10	7	nw.	G. W. Swan.
Rhode Island.																				
Block Island	Newport	26	29	68.0	- 0.7</															

TABLE 1.—Climatological data for August, 1909. District No. 1—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.
New York—Cont'd.																			
Bedford	Westchester	450	11	70.2	+ 0.4	97	8	44	31	35	6.21	+ 0.64	2.78	0.0	10	17	9	5	Dr. L. Rosenburg.
Binghamton	Broome	875	18	65.6	- 1.9	94	8	38	31	39	2.52	- 0.83	1.20	0.0	7	10	8	13	U. S. Weather Bureau.
Bouckville	Madison	1,350	12	64.7	- 0.8	90	8	36	31	37	1.97	- 2.01	0.69	0.0	8	13	13	3	L. W. Griswold.
Boyd's Corners	Putnam	560	27								7.55	+ 2.45							Thomas Manning.
Carmel	Putnam	500	17	66.5	- 3.4	92	8	42	31	32	6.76	+ 1.94	3.49	0.0	6	23	12	6	Thomas Manning.
Chatham	Columbia	470	8	66.7		92	25	42	31	33	3.72		1.78	0.0	10	18	7	6	Morton R. Tank.
Cooperstown	Otsego	1,250	55	63.4	- 2.0	86	8	36	31	34	3.87	- 0.46	2.00	0.0	8	16	8	7	G. Pomeroy Keese.
Corinth	Saratoga	542	7								2.62		1.00	0.0	6				A. M. Hollister.
Cortland	Cortland	1,129	47	66.3	+ 1.3	93	8	37	31	38	2.15	- 1.90	1.12	0.0	6	24	4	3	F. G. Baker.
Cutogue	Suffolk	32	32	69.4	- 1.0	92	8	48	31	30	2.47	- 0.20	1.30	0.0	7	18	9	4	Wm. A. Fleet.
De Ruyter	Madison	1,300	6	65.5		95	8	36	31	43	2.05		0.85	0.0	5	21	3	7	B. D. Crandall.
Easton	Washington	863	19								3.74	- 0.31	0.0						H. Taber.
Elmira	Chemung	27	27	69.6	+ 0.5	98	8	42	22	44	2.61	- 0.92	0.85	0.0	8	18	8	5	Gerity Bros.
Fort Hunter	Montgomery	290	9								2.30		1.35	0.0	7	17	6	8	C. E. Wing.
Fort Plain	Montgomery	316	5	68.7	- 0.1	93	8	42	31	32	3.59		1.35	0.0	8	22	5	4	Abram Devendorf.
Glen Falls	Warren	340	15	67.4	- 0.1	93	8	39	31	36	2.86	- 1.22	0.70	0.0	7	13	9	9	Prof. C. L. Williams.
Gloversville	Fulton	850	17	64.4	- 0.7	90	8	35	31	35	2.93	- 1.46	1.45	0.0	7	12	15	4	W. L. McLean.
Greenfield Center	Saratoga	314	11	66.4	- 1.2	92	8	39	31	38	2.20	- 1.95	0.72	0.0	7	17	9	5	S. E. Darrow.
Greenwich	Washington	425	12	69.1	+ 1.7	97	8	42	31	38	2.87	- 0.79	1.05	0.0	10	16	11	4	I. V. H. Gill.
Griffin Corners	Delaware	2,260	9	62.6		91	8	33	31	44	1.48		0.52	0.0	6	19	4	8	Sylvanus Kelly.
Hancock	Delaware										2.62		0.0						Daniel B. Van Eaton.
Haskinsville	Steuben	410	9								2.82	- 0.23	1.32	0.0	6				W. G. Collins.
Hoosick Falls	Rensselaer	1,705	10	62.2	0.0	99	8	20	31	54	2.15	- 1.28	1.40	0.0	6	16	6	9	Sanford L. Cluett.
Indian Lake	Hamilton	1,240	6	64.4		95	8	37	31	39	3.94		1.97	0.0	7	19	8	4	Lester Severly.
Jeffersonville	Sullivan										2.15		1.20	0.0	3				Chas. Wilfert, Jr.
Lake Pleasant	Hamilton	2,300	23	65.1	+ 0.7	91	8	45	30	26	4.67	+ 0.20	1.68	0.0	7	19	4	8	Willett Lawrence.
Liberty	Sullivan	924	11	65.6	- 1.3	90	8	41	31	32	2.98	- 0.72	1.67	0.0	6	20	7	4	Dr. H. M. King.
Little Falls	Herkimer	1,245	13	65.7	- 1.4	86	9	46	31	23	6.34	+ 0.62	2.75	0.0	18	7	6	sw.	O. J. Demster.
Mohawk Lake	Ulster	1,697	1								2.18		1.28	0.0	7	23	1	7	A. K. Smiley.
Morehouseville	Hamilton	200	12	68.4	- 2.1	96	8	42	31	38	7.14	+ 1.60	2.70	0.0	6	10	15	6	Theodore C. Remonda.
Mount Hope	Westchester	825	18								2.51	- 2.18	0.70	0.0	7	24	3	4	Wm. A. Cornelius.
Newark Valley	Tioga										3.98		2.18	0.0	8	19	4	8	M. D. Clinton.
New Berlin	Chenango	1,234	19	61.5	- 2.1	91	8	32	31	42	4.69	- 0.36	2.48	0.0	6	17	6	8	Roger Greene.
New Lisbon	Otsego	314	84	71.6	- 0.6	93	9	38	4	21	7.94	+ 3.41	5.05	0.0	9	13	10	8	G. A. Yates.
New York City	New York	1,002	1	64.2		92	8	36	31	36	2.48		1.41	0.0	5	23	6	2	U. S. Weather Bureau.
North Creek	Warren	742	7								2.62		1.35	0.0	7	15	9	7	W. G. Kenwell.
Northville	Fulton	1,015	3	13.2		93	8	34	31	38	2.76		1.38	0.0	8				P. C. Pickard.
Norwich	Chenango	1,112	15	66.8	- 0.9	96	8	37	31	38	2.95	- 2.33	1.06	0.0	7	21	4	6	H. S. Hopkins.
Oneonta	Otsego	916	44	64.0	- 1.6	89	8	36	31	35			1.02	0.0	8	16	8	7	H. W. Lee.
Oxford	Chenango	470	25	68.8	- 0.3	102	8	42	31	41	2.39	- 2.15	1.02	0.0	8	16	8	7	John P. Davis.
Port Jervis	Orange	1,526	12	64.6	- 0.3	89	8	37	31	36	4.42	- 0.60	2.50	0.0	8	8	21	2	Prof. John M. Dolph.
Saltabury	Herkimer	314	10	68.2	- 1.1	94	8	46	23	39	5.63	+ 0.81	2.47	0.0	6	25	2	4	Joseph Ryan.
Saltabury Mills	Orange	209	5	68.2		92	8	46	31	28	8.78		6.20	0.0	5	18	10	3	H. P. Ramsdell.
Searsdale	Westchester	40	24	68.6	- 2.0	88	8	32	31	22	4.88	+ 0.53	1.47	0.0	9	20	4	7	C. H. Wilmarth.
Setauket	Suffolk	36	8	68.8		89	8	33	15	24	3.67		0.89	0.0	6				Selah B. Strong.
Sherburne	Chenango	310	14								6.61	+ 1.06	2.24	0.0	7	21	7	3	E. B. Collins.
Southampton	Suffolk	400	8	65.4		91	8	39	31	37	2.95		0.68	0.0	6	21	5	5	W. L. Jagger.
Southeast Reservoir	Putnam	751	6								2.59		1.20	0.0	8	15	3	13	Thomas Manning.
Spier Falls	Saratoga	268									2.10		1.10	0.0	6	21	4	6	W. F. Anderson.
Trenton Falls	Montgomery	537	4								3.60		2.03	0.0	8				C. W. Young.
Tribehill	Utica	112	3	68.4		91	8	41	31	35	6.37		1.79	0.0	8	22	3	6	R. S. Marshall.
Utica	Suffolk	110	19	67.4	- 2.9	89	9	46	31	28	6.47	+ 1.35	2.56	0.0	9	16	11	4	W. E. Young.
Wading River	Dutchess	538	9								3.68	- 1.16	1.55	0.0	7				H. C. Fullerton.
Wappingers Falls	Orange	824	27	66.8	- 0.6	100	8	36	22	50	3.33	- 0.22	1.04	0.0	8	11	12	8	H. C. Townsend.
Warwick	Tioga	936	12	64.3	- 2.7	93	8	32	31	42	2.57	- 1.29	0.74	0.0	7	16	9	6	John W. Sly.
Waverly	Albany	167	60	70.2	- 2.0	93	9	47	31	29	4.50	- 0.71	1.50	0.0	6	17	9	5	Hon. J. F. Shoemaker.
West Berne	Orange	1,520	10	62.9		89	8	33	31	39	2.60		0.81	0.0	7	15	12	4	W. J. Haverly.
West Point	Greene																		Maj. Chas. M. Gandy.
Windham	Greene																		A. R. Mott.
Pennsylvania.																			
Altoona	Blair	1,181	21			94	8	41	22		1.17		0.60	0.0	5				Dr. C. B. Dudley.
Bellefonte	Center	826	8	72.6	+ 1.6	99	9	42	21	47	2.47	- 1.67	1.96	0.0	8	17	8	6	Fred Kurtz.
Center Hall	Center	1,272	10	69.4	+ 0.2	94	8	42	22	43	2.58	- 1.98	1.97	0.0	6	12	7	12	S. W. Smith.
Clearfield	Clearfield	1,107	1	67.4		97	8	40	15	44	2.11		0.92	0.0	7	23	0	8	Raymond C. Ogden.
Coatesville	Chester	380	21	71.7	- 1.0	99	9	48	23	43	0.46	- 4.02	0.38	0.0	4	15	12	4	W. T. Gordon.
Drifton	Luzerne	1,633	11	64.5	- 2.5	90	8	41	22	44	1.76	- 2.40	0.90	0.0	10	17	9	5	Ekley B. Cox, Jr.
Dushore	Sullivan	1,590	11	67.6	+ 1.5	94	8	34	15	44	1.61	- 2.90	0.90	0.0	3	19	7	5	Dr. J. D. Benjamin.
Easton	Northampton	325	26	69.4	- 2.2	94	9	48	22	37	1.51	- 3.25	0.83	0.0	6	9	16	6	J. W. Colliton.
Emporium	Cameron	1,050	22	66.4	- 1.8	92	8	40	22	37	0.96	- 2.77	0.33	0.0	6	16	11	4	T. B. Lloyd.
Ephrata	Lancaster	384	9	70.8	- 1.3	98	9	45	23	47	0.67	- 4.41	0.37	0.0	4	19	5	7	W. L. Frantz.
Everett	Bedford	1,080	11	69.4	- 0														



TABLE 1.—Climatological data for August, 1909. District No. 1—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Pennsylvania—Cont'd.																			
Scranton	Lackawanna	805	9	67.8	-1.5	95	25	47	22	38	1.22	-3.03	0.35	0.0	11	13	8	10	U. S. Weather Bureau.
Selinsgrove	Snyder	455	21	70.5	-1.0	97	8	42	22	42	1.74	-2.78	1.47	0.0	6	0	23	8	J. M. Boyer, C. E.
State College	Center	1,191	21	66.2	-2.5	92	8	44	22	34	4.10	-0.13	2.61	0.0	8	0	0	0	Prof. Wm. Frear.
Towanda	Bradford	754	14	67.0	-1.5	95	8	39	31	45	2.22	-1.38	0.46	0.0	8	23	1	7	Hiram E. Bull, C. E.
Wellsboro	Tioga	1,327	32	66.0	+0.4	96	8	36	22	47	1.51	-1.99	0.99	0.0	8	11	15	5	O. L. White.
West Chester	Chester	455	55	71.9	-0.0	96	9	51	22	33	1.80	-2.73	1.76	0.0	3	15	8	8	J. C. Green, D. D. S.
Wilkes-Barre	Luzerne	575	24	69.4	-0.7	97	8	40	28	50	1.26	-2.72	0.82	0.0	4	9	9	13	A. W. Betterly.
Williamsport	Lycoming	530	19	70.8	+0.6	94	8	45	22	36	1.40	-2.66	0.65	0.0	5	20	3	8	Henry H. Guise.
New Jersey.																			
Asbury Park	Monmouth	22	21	70.5	-1.6	95	9	55	31	24	6.80	+1.93	3.26	0.0	8	14	7	10	B. H. Obert.
Atlantic City	Atlantic	16	36	70.9	-1.7	86	10	55	5	28	2.95	-1.35	2.40	0.0	5	14	5	12	U. S. Weather Bureau.
Bayonne	Hudson	50	19	70.6	-3.1	95	9	51	31	36	6.96	-2.07	4.01	0.0	9	13	10	8	J. H. Eadie.
Belvidere	Warren	289	19	68.3	-3.2	94	8	44	31	36	1.88	-2.91	0.62	0.0	6	14	10	7	S. J. Hixson.
Bergen Point	Hudson	37	12	70.2	-2.1	94	9	53	31	30	8.13	+2.94	4.73	0.0	8	14	9	8	Dr. W. H. Mitchell.
Boonton	Morris	413	19	70.2	-2.1	94	9	53	31	30	8.13	+2.94	4.73	0.0	8	14	9	8	F. G. McIntosh.
Bridgeton	Cumberland	30	34	72.2	-3.4	96	9	49	22	38	2.43	-2.03	1.63	0.0	3	16	8	7	H. A. Jorden.
Burlington	Burlington	12	25	72.2	-3.4	96	9	49	22	38	2.43	-2.03	1.63	0.0	3	16	8	7	D. S. B. McCoy.
Canton	Salem	24	15	70.7	-2.7	84	10	56	22	16	4.33	+0.07	2.90	0.0	7	12	13	6	J. H. Maskell.
Cape May City	Cape May	17	25	70.7	-2.7	84	10	56	22	16	4.33	+0.07	2.90	0.0	7	12	13	6	U. S. Weather Bureau.
Cape May C. H.	Cape May	19	22	71.2	-2.2	89	9	55	11	25	3.16	-0.68	2.40	0.0	4	11	10	10	L. T. Garrettson.
Charlotteburg	Passaic	719	17	66.3	-1.7	97	8	34	31	41	5.14	+0.40	0.0	0.0	6	15	8	8	G. S. Briggs.
Chatham	Morris	234	7	71.6	-1.8	96	9	50	31	39	1.63	-3.75	0.88	0.0	4	15	7	9	M. A. Butler.
Clayton	Gloucester	126	18	71.6	-1.8	97	9	49	31	34	9.07	+3.72	6.15	0.0	6	13	9	9	W. T. Farley.
College Farm	Middlesex	100	14	70.6	-1.8	97	9	49	31	34	9.07	+3.72	6.15	0.0	6	13	9	9	G. B. Thrasher.
Culver's Lake	Sussex	848	8	71.6	-2.0	94	8	40	31	37	4.63	-0.39	0.0	0.0	8	13	10	8	B. E. Riker.
Dover	Morris	575	25	66.8	-2.6	94	8	40	31	37	4.63	-0.39	0.0	0.0	8	13	10	8	W. C. Harris.
Elizabeth	Union	33	30	71.6	-2.0	94	9	53	31	31	5.87	+1.38	0.0	0.0	9	14	9	8	W. M. Oliver.
Englewood	Bergen	135	23	71.4	-1.2	98	8	47	31	39	3.65	-1.47	2.82	0.0	7	18	6	7	W. C. Tucker.
Flemington	Hunterdon	187	21	71.4	-1.2	98	8	47	31	39	3.65	-1.47	2.82	0.0	7	18	6	7	H. E. Deats.
Freehold	Monmouth	187	28	71.1	-2.6	96	9	49	31	39	1.97	-2.75	1.33	0.0	3	15	8	8	F. T. Cooper.
Friesburg	Salem	100	18	71.1	-2.6	96	9	49	31	39	1.97	-2.75	1.33	0.0	3	15	8	8	H. C. Porry.
Haddonfield	Camden	75	1	71.4	-2.2	97	9	49	31	39	1.97	-2.75	1.33	0.0	3	15	8	8	C. F. Richardson.
Hammonton	Atlantic	80	12	70.5	-2.1	98	9	47	31	39	5.36	+0.84	3.03	0.0	7	15	8	8	Orville Bassett.
Hightstown	Mercer	85	18	70.5	-2.1	98	9	47	31	39	5.36	+0.84	3.03	0.0	7	15	8	8	Ernst Wenger.
Imlaystown	Monmouth	106	23	70.5	-2.1	98	9	47	31	39	5.36	+0.84	3.03	0.0	7	15	8	8	Dr. F. C. Price.
Indian Mills	Burlington	76	9	70.6	-2.3	96	9	46	31	45	2.86	-1.57	0.0	0.0	4	13	10	8	James Armstrong.
Jersey City	Hudson	15	4	72.8	-2.7	96	9	53	31	29	7.18	-4.75	0.0	0.0	9	13	11	7	S. K. Pearson, jr.
Lakewood	Ocean	54	8	69.1	-2.2	97	9	44	31	34	6.92	-0.48	2.89	0.0	6	16	7	8	H. R. Major.
Lambertville	Hunterdon	95	23	70.4	-2.2	96	8	46	31	34	4.17	-0.48	2.89	0.0	6	16	7	8	W. R. Bowne.
Layton	Sussex	550	10	66.0	-2.2	97	8	38	22	45	1.70	-2.26	0.97	0.0	5	14	9	8	W. C. Hursh.
Little Falls	Passaic	175	7	70.6	-2.2	96	9	52	31	27	8.17	-3.28	0.0	0.0	7	14	9	8	F. Farns.
Long Branch	Monmouth	30	1	70.6	-2.2	96	9	52	31	27	8.17	-3.28	0.0	0.0	7	14	9	8	B. B. Bobbitt.
Mahwah	Bergen	312	7	71.4	-1.1	96	9	50	31	35	2.28	-2.53	1.57	0.0	5	19	4	8	M. F. Brooks.
Moorestown	Burlington	71	47	71.4	-1.1	96	9	50	31	35	2.28	-2.53	1.57	0.0	5	19	4	8	J. C. Beana.
Newark	Essex	140	65	71.0	-1.7	95	8	50	31	30	6.57	+1.35	4.53	0.0	8	12	10	9	Prof. Wm. Wiener.
New Brunswick	Middlesex	61	56	69.8	-2.7	97	8	48	22	38	6.00	+0.93	5.10	0.0	5	16	6	9	W. T. Woerner.
Newton	Sussex	678	30	68.3	-1.7	96	8	42	31	38	3.45	-1.12	1.61	0.0	8	18	6	7	B. H. Kienbaum.
Northfield	Atlantic	1	1	70.4	-2.6	92	9	52	31	28	12.94	+7.92	5.05	0.0	9	15	9	7	W. L. Flick.
Oceanic	Monmouth	16	23	70.4	-2.6	92	9	52	31	28	12.94	+7.92	5.05	0.0	9	15	9	7	Prof. C. E. Dietz.
Patereson	Passaic	110	39	70.0	-2.1	96	8	48	31	32	5.18	+0.05	3.12	0.0	9	12	11	8	H. A. Probert.
Phillipsburg	Warren	196	7	70.0	-1.7	97	25	46	31	39	1.41	-3.43	0.76	0.0	7	15	8	8	D. W. Smith.
Plainfield	Union	100	22	70.2	-2.6	99	8	47	31	36	6.37	+1.13	5.16	0.0	7	10	16	5	John Neagle.
Pleasantville	Atlantic	26	11	70.2	-2.6	99	8	47	31	36	6.37	+1.13	5.16	0.0	7	10	16	5	L. Van Gilder.
Pompton Plains	Morris	195	7	70.2	-2.6	99	8	47	31	36	6.37	+1.13	5.16	0.0	7	10	16	5	M. S. Taylor.
Port Norris	Cumberland	8	1	70.2	-2.6	99	8	47	31	36	6.37	+1.13	5.16	0.0	7	10	16	5	J. H. Barracough.
Rancocas	Burlington	68	46	70.2	-2.6	99	8	47	31	36	6.37	+1.13	5.16	0.0	7	10	16	5	Spencer Haines.
Rivervale	Bergen	70	18	70.2	-2.6	99	8	47	31	36	6.37	+1.13	5.16	0.0	7	10	16	5	G. S. M. Holdrum.
Rumson	Middlesex	18	3	70.2	-2.6	99	8	47	31	36	6.37	+1.13	5.16	0.0	7	10	16	5	J. H. Cottrell.
Somerville	Somerset	76	30	71.4	-1.3	100	8	46	31	36	4.78	-0.07	3.30	0.0	7	18	5	8	P. Hardeastle.
South Orange	Essex	200	40	68.8	-2.2	93	9	48	31	26	6.45	+1.08	4.72	0.0	8	16	9	6	Dr. W. J. Chandler.
Sussex	Sussex	442	19	68.0	-1.9	95	8	43	31	35	3.36	-1.02	1.70	0.0	7	15	8	8	Prof. W. H. Seeley.
Trenton	Mercer	60	40	71.0	-3.5	93	9	53	31	30	4.98	-0.58	3.20	0.0	6	14	10	7	E. R. Cook.
Tuckerton	Ocean	23	16	70.3	-2.7	93	8	45	31	41	3.20	-2.46	2.10	0.0	4	14	9	8	F. R. Austin.
Vineland	Cumberland	118	42	70.3	-2.7	93	8	45	31	41	3.20	-2.46	2.10	0.0	4	14	9	8	Alfred Chalmers.
Woodbine	Cape May	43	18	70.3	-2.7	93	8	45	31	41	3.20	-2.46	2.10	0.0	4	14	9	8	Prof. R. D. Maltby.
West Virginia.																			
Bayard	Grant	2,500	6	64.8	-1.3	87	8	37	22	43	4.96	-1.92	0.0	0.0	13	16	9	5	Solomon Clark.
Burlington	Mineral	873	13	70.2	-1.3	98	8	42	22	44	2.55	-1.09	0.0	0.0	4	10	17		

TABLE 1.—Climatological data for August, 1909. District No. 1—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Maryland—Cont'd.																				
Laurel.....	Prince George.....	150	15	71.1	- 2.9	97	9	47	22	40	1.21	- 3.35	0.48	0.0	7	13	14	4	.....	Dr. T. M. Baldwin.
Monrovia.....	Frederick.....	630	22	72.2	- 1.1	96	8	54	11†	34	2.78	- 1.80	1.80	0.0	5	15	9	7	ne.	J. H. Lawson.
Ocean City.....	Worcester.....	10	.....	73.6	.....	91	9	55	22	21	5.19	.....	3.18	0.0	4	.....	.....	.....	.....	J. Alan Massey.
Pocomoke City.....	Worcester.....	37	16	73.6	- 2.4	89	9†	56	23	25	4.73	+ 0.74	2.48	0.0	5	19	8	4	sw.	R. M. Stevenson.
Porto Bello.....	St. Marys.....	38	4	75.1	.....	96	9	60	30	27	3.70	.....	1.92	0.0	8	23	6	12	se.	Alpheus Hyatt.
Princess Anne.....	Somerset.....	17	16	71.0	- 2.7	87	9	50	23	30	6.40	+ 1.35	2.60	0.0	7	5	19	7	sw.	Jas. R. Stewart.
Rockville.....	Montgomery.....	421	2	71.2	.....	92	9	52	22	25	3.92	.....	2.10	0.0	7	20	4	7	.....	Dr. Geo. E. Lewis.
Salisbury.....	Wicomico.....	23	4	73.4	.....	92	9†	55	5†	33	4.44	.....	1.92	0.0	7	17	11	3	sw.	W. E. Downing.
Sanatorium.....	Frederick.....	.....	1	69.8	.....	93	8†	42	11	39	2.24	.....	0.62	0.0	7	17	6	8	sw.	Dr. W. M. Garrison.
Solomons.....	Calvert.....	20	18	74.8	- 2.4	94	9	63	5†	25	4.61	+ 0.60	1.40	0.0	11	3	12	6	sw.	Dr. W. H. Marsh.
Sudlersville.....	Queen Annes.....	65	10	71.0	- 2.7	97	9	48	23	40	1.61	.....	0.82	0.0	4	20	5	6	e.	Jas. E. Higman.
Takoma Park.....	Montgomery.....	320	11	71.6	- 1.6	95	10	52	11	38	1.40	- 3.83	0.70	0.0	8	19	12	0	.....	L. M. Mooers.
Taneytown.....	Carroll.....	450	10	70.4	- 3.2	97	9	45	22	39	3.02	- 1.00	1.62	0.0	8	22	5	4	se.	R. A. Nusbaum.
Towson.....	Baltimore.....	475	1	72.1	.....	98	9	49	22	39	1.09	.....	0.62	0.0	6	21	3	7	se.	C. W. Treadwell.
Van Bibber.....	Harford.....	100	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. A. Wroth.
Westernport.....	Allegheny.....	1,000	15	71.0	- 0.5	95	8	46	23†	41	4.19	+ 0.78	1.76	0.0	13	.....	.....	.....	.....	Prof O. H. Bruce.
Woodstock.....	Baltimore.....	392	35	72.6	+ 0.3	94	1†	49	23	35	0.85	- 3.29	0.45	0.0	5	16	7	8	nw.	Rev. A. J. Donlon.
District of Columbia.																				
Washington.....	District of Columbia.....	112	39	73.0	- 1.5	96	9	53	29	30	2.27	- 2.13	1.42	0.0	12	13	13	5	n.	U. S. Weather Bureau.
Delaware.																				
Delaware City.....	New Castle.....	10	7	72.0	.....	94	9	54	5	28	1.61	.....	1.05	0.0	3	26	3	2	sw.	H. Morton Price.
Dover.....	Kent.....	40	21	72.3	- 1.5	94	9	51	23	35	2.83	- 1.27	1.19	0.0	3	14	9	8	nw.	Thos. F. Dunn.
Milford.....	Kent.....	20	23	72.4	- 2.4	93	9	52	23	33	2.52	- 1.02	1.64	0.0	6	17	8	6	sw.	C. J. Holzmüller.
Millsboro.....	Sussex.....	20	17	72.1	- 2.4	93	27†	48	23	38	5.16	+ 0.08	3.25	0.0	5	22	0	9	nw.	Rev. L. W. Wells.
Seaford.....	Sussex.....	40	16	.....	.....	.....	.....	51	23	31	2.73	- 1.29	1.35	0.0	5	20	7	4	sw.	E. B. Brown.
Virginia.																				
Culpeper.....	Culpeper.....	450	.....	72.8	.....	97	9	50	23	37	2.66	.....	0.85	0.0	9	9	17	5	n.	Col. H. C. Burrows.
Dale Enterprise.....	Rockingham.....	1,350	30	70.8	- 1.5	97	9†	41	23	47	1.84	- 2.28	0.71	0.0	12	11	16	4	s.	Rev. L. J. Heatwole.
Doswell.....	Hanover.....	134	8	73.4	.....	96	10†	49	23	35	6.35	.....	1.86	0.0	8	16	10	5	s.	R. F. & P. R. R.
Fredericksburg.....	Spottsylvania.....	100	20	73.1	- 2.6	95	9	50	23	39	5.33	+ 0.78	2.00	0.0	10	16	9	6	se.	S. G. Howison.
Lincoln.....	Loudon.....	500	8	73.8	+ 0.8	102	9	44	22	43	2.84	+ 2.42	1.30	0.0	7	15	11	5	nw.	Dr. George Roberts.
Mt. Weather.....	Loudon.....	1,726	5	68.8	- 0.2	90	9	52	22	20	2.64	- 2.44	1.19	0.0	10	13	11	7	nw.	U. S. Weather Bureau.
Nokesville (near).....	Fauquier.....	350	5	71.7	.....	94	9	51	23	35	2.97	.....	1.43	0.0	5	11	14	6	.....	Andrew Low.
Quantico.....	Prince William.....	16	12	73.3	- 1.3	94	9	49	23	34	1.59	.....	1.34	0.0	3	23	0	8	ne.	R. F. & P. R. R.
Shenandoah.....	Page.....	937	8	.....	.....	.....	.....	.....	.....	.....	4.90	+ 0.90	1.14	0.0	11	23	5	3	sw.	N. & W. Ry.
Staunton.....	Augusta.....	1,380	17	71.2	- 2.1	94	27	48	22	40	3.26	- 0.67	0.94	0.0	9	9	17	5	.....	Western State Hospital.
Stephens City.....	Frederick.....	710	17	72.2	- 2.0	98	25†	45	22	40	2.48	- 1.34	0.78	0.0	7	23	3	5	e.	B. T. Argenbright.
Warsaw.....	Richmond.....	160	17	71.8	- 4.0	90	26	51	23	29	7.09	+ 2.77	2.90	0.0	10	12	17	2	s.	C. H. Constable.
Woodstock.....	Shenandoah.....	927	13	71.2	- 2.7	96	8†	47	22	41	3.45	- 0.60	1.15	0.0	10	20	7	4	w.	Miss A. G. Miley.

\* Precipitation included in that of the next measurement.

\* Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.

† Also on other dates.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

§ Estimated by observer.

|| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

\*, †, §, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.



TABLE 2.—Daily precipitation for August, 1909. District No. 1, North Atlantic States.

Stations.	River basins.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Maine.																																	
Bar Harbor	Coast					T.			T.		T.	T.						.35	.15	T.				T.		T.	.03	T.		T.			1.53
Cornish	Saco				.29	.01								.03	.03		.06	.73	.56	.02	.14			.08		.32			.07			2.34	
Danforth	Penobscot								.30		.60	.05							.85		T.	.50		.10	.15	T.	.30		.10			1.95	
Debsconeg	do.						.12		.34	.11									.114	.05	.71					.23	.27		.07			3.04	
Eastport	Coast				T.	.01		.28	.06	.61	.05							.11	.40	.02				T.		T.	.05	.02		T.			1.61
Fairfield	Kennebec																	.78		.11	.08							.20				1.17	
Farmington	do.				.02	.07			.07	.03	T.			.02	.23			.06	.79	T.	.80						.15	.08		.30			2.60
Gardiner	do.				.05						.01						T.	.30	.82	.03	.10			.04			.18		.04			1.59	
Greenville	do.				T.	.04		.02	.94	.30	T.			.04				.27	.86	.02	.70	.02				.06	.47	.08		.08			3.00
Houlton	St. John								.50									.30			T.			.10		T.		.35		.40			1.65
Lewiston	Androscoggin				.12	T.				.01				T.			.03	.48	.31	.12				.03		.11		.04				1.25	
Madison	Kennebec								T.	.09							*	1.55	.42	.33				T.		.07		.22				2.68	
Millinocket	Penobscot				.21		.21	.10	.10	.03								1.00	.14		1.00						.18			.08			3.07
North Bridgeton	Saco				.14				.01	.02	.14	.02		.01			.04	*	.93	.01				.03		T.	.29		.06			1.51	
Orono	Penobscot								.01	.02	.14	.02						1.30	.08							.12		.13				1.82	
Oquossoc	Androscoggin				.30					.50	.34	.06			.70				.40	.20						.40		.60				2.60	
Patten	Penobscot																	1.24	.15	.26	1.05				.16							3.91	
Portland	Coast				.12									T.			T.	.84	.28	.12	.10			T.		.22		T.				1.79	
Rumford Falls	Androscoggin				.14	.09				.06				.39				.02	.60	.30						.02				.17			1.79
The Forks	Kennebec				.10				.35	.10				.15					1.15	.10	1.20					.20							3.35
Van Buren	St. John																																1.76
Winslow	Kennebec				.03						.30								.85	.16	.16					.01							1.76
New Hampshire.																																	
Alstead Center	Connecticut		.04			.41	.05							.54			1.23	.94	.34	.03	.08								.09				3.75
Benton	do.				T.	.54			.06	.41							T.	.47	.32	.30	.11	.03					.49		.33				3.06
Bethlehem	do.				.18	.39			T.	.36					.10			.21	.13	.30	.10	.36					.90		.21				3.24
Brookline	Merrimac				.85													.25	1.75	.17								.25				3.41	
Concord	do.				1.04	.01			T.									.18	1.27	.06	.01	.04						.04				2.85	
Durham	do.				.80	.14												.02		.87													1.86
Franklin	do.				.78					T.								.17	.29	.43				T.			.05	T.		.03			1.79
Grafton	do.		.01		.63													.40	.23	.25							.16		.10				3.38
Hanover	Connecticut				1.07	.05			T.	.05								.84	.46	.04	.13	.47	.01	T.			.20		.06				4.20
Keene	do.				T.	.45	.33			.05				.41			1.34	.70	.08	.50	.14					T.		.20					2.60
Nashua	Merrimac																	1.45	.17		T.			T.				.56					3.38
Newton	Merrimac				.99				.21		T.							T.	1.45	.17		T.		T.		T.		.24		.09			1.60
Plymouth	do.				.46	T.				.04								.25	.20	.32	T.	T.		T.									2.60
West Ossipee	Saco				.30													.40	1.00		.80						.10						2.60
Vermont.																																	
Bloomfield	Connecticut				T.	.20				.25	.10	.02		.35			.09	.02	.40	.02	.14	.06					.27	.01		.12			2.05
Cavendish	do.					1.50	T.						T.			T.		.99	.77	.43		.05			T.			.40		.10			3.83
Chelsea	do.				1.06	.15					.10							.67	.31	.10	.08	.05							.10				2.96
Jacksonville	do.				1.25	.01					.30							.95	1.05	.30	.01	.02							.01				3.90
Manchester	Hudson		.22		.90	T.			.68									.71	.56	.27	.06	T.						.22					3.32
St. Johnsbury	Connecticut				.05	.64			.08		.09	.05						.23	.14	.22	.03	.27						.57		.10			2.49
Woodstock	do.				1.64						T.							1.03	.61		T.	.37					.24		T.				3.89
Massachusetts.																																	
Amherst	Connecticut				.21	.70	.02							.27			1.58	.86	T.		.03						T.		.13				3.80
Ashland	Merrimac				.61									.03	.01			* 1.85		.06								.18					2.74
Bakers Bridge	do.				.67													1.64	.16		.16							.45					3.08
Bedford	do.				T.	.47	.06							.04				.04	1.28	.27	T.	.01	.05		T.		T.		.04				2.26
Blue Hill	Coast				T.	.69	.26							T.				.012	.15	.51	T.	.36	.10		T.		T.		.14				4.22
Boston	do.				.04	.76	.05							T.				.01	.92	.34	.07				T.		T.		.36				3.55
Chestnut Hill	do.				.55	.40								.03				T.	2.72		.05				T.		T.		.36				4.11
Clinton	Merrimac				* .93									.20				* .78			.10							.08					3.09
Concord	do.				T.	.46	.06							.04				.03	1.35	.42		T.	.07		T.		T.		.05				2.48
Fall River	Coast				.10	.30	.10							.10				1.58	.10		.10							.02					2.30
Fitchburg	Merrimac				T.	.82	.04							.11				.42	1.13	.24	.32								T.				3.08
Framingham	do.				* .63									.04				.13	* 1.76		.07							.19					2.82
Haverhill	do.				.63	.06				.04				.04				T.	.78	.64	T.				T.				.30				2.45
Hingham	Coast				T.	.84					T.							.04	* 1.88	T.	.56				T.		T.		.31				3.63
Hyannis	do.				T.	.15	.15											1.83	.11									.02					2.26
Jefferson	Merrimac				1.27									.45				* .24			.08							.42					4.22
Lake Catharine	do.				* .75									.04				.05	* 1.83		.07							.10					2.84
Lawrence	do.				T.	.53	.02				.07							.02	* 1.00	T.				.01			T.		.15				1.80
Leominster	do.				T.	.65	.07				T.			.13																			

TABLE 2.—Daily precipitation for August, 1909. District No. 1—Continued.

Stations.	River basins.	Day of month.																															Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Connecticut—Cont'd.																																			
Hawleyville.....	Housatonic.....				.50	.26											1.11	.81	.11			.12											4.91		
Lake Konomoc.....	Coast.....				1.25	.11					.04						.46	1.22												.04			3.12		
New Haven.....	do.....			.04	.72	.94											T.	T.	1.28	.43	.05		.02							.01			3.49		
New London.....	do.....			T.	1.21	T.											.30	.94													.50		2.95		
North Grosvenordale.....	do.....				.26										.06		.47	.83	.05			.68											2.35		
Norwalk.....	do.....				* .20												3.75					.13									.35		6.23		
Southington.....	do.....			T.	1.20	.05											.65	1.50	.20														3.60		
South Manchester.....	Connecticut.....				.94	.60											.65	.59															2.78		
Storrs.....	Coast.....					.70											1.31																2.01		
Torrington.....	Housatonic.....				1.08	.17											.33	* 1.39				.17									.02		3.16		
Voluntown.....	Coast.....				.35												.50														.20		1.25		
Wallingford.....	do.....				1.97	.11	.17							.03			14.07	.91															4.40		
Waterbury.....	Housatonic.....				1.40	.05											1.18	.69	.10		.05												3.47		
West Simsbury.....	Connecticut.....			T.	* 1.23	.10											*	* 2.66				.03									.03		4.05		
New York.																																			
Addison.....	Susquehanna.....										.09						.08	.47	.04	.06		.07						1.28		.13	.18		2.40		
Albany.....	Hudson.....				.02	.90							.02	.04			.15	.15	.24	.39		.30	.03					.04			.14		2.42		
Amsterdam.....	Mohawk.....			.10			.17	T.						.25			*	*	* 1.80			.22											2.54		
Athens.....	Hudson.....				.08	1.52						T.	.04		T.	T.	T.	1.08	.68	.14	T.	.20						.02		.32			4.08		
Ballston Lake.....	Hudson.....			.01		.50	.03							.23			.63	.14	.30	T.	.87							.02		.01			2.74		
Bedford.....	Coast.....			.18		.28	.78										1.78	.86	.08		.09		.05					.04		.07			6.21		
Binghamton.....	Susquehanna.....						T.										.14	.84	.36	.11		.51						.35		.21			2.52		
Bouckville.....	Susquehanna.....											.05					.23	.69	.34	.14		.40						.07		.05			1.97		
Boyd's Corners.....	Hudson.....																																		
Carmel.....	do.....				* 3.49												*	.46	.75		.06												6.76		
Chatham.....	do.....			T.		1.78	T.							.03			.58	.35	.16	.05		.01	.10					.01		.65			3.72		
Cooperstown.....	Susquehanna.....										.12						.54	2.00	.50	.07		.50						.07		.07			3.87		
Corinth.....	Hudson.....				.30									.15			1.00	.70	.05		.42												2.62		
Cortland.....	Susquehanna.....																1.12	.30	.14		.41												2.15		
Cutchogue.....	Coast.....				.12	.85						T.	.05			T.	.77	1.30	.19										.15		.03			3.47	
De Ruyter.....	Susquehanna.....																.85	T.	.35	.20		.54							.11			*	2.05		
Easton.....	Hudson.....					* 1.50											*	* 2.24															3.74		
Elmira.....	Susquehanna.....										.01						.16	.51	.50										.85		.28			2.61	
Fort Hunter.....	Mohawk.....				.20	.10						.10					.40	.20	* 1.00		.30								.02		.13			3.59	
Fort Plain.....	do.....					.02								.20			T.	1.35	.08	.49		.35											2.86		
Glens Falls.....	Hudson.....				*	.42								*	.27		* .70	.70	.59		.11		.07										2.93		
Gloversville.....	Mohawk.....			.12		.06	T.							.10		.10	1.45	.60	.32		T.	T.								.28			2.93		
Greenfield Center.....	Hudson.....					.45		.08						.15			.72	.70	.10											.05			2.20		
Greenwich.....	do.....					1.05	.01										.20	.85	.24	.28									.01		.07			2.87	
Griffin Corners.....	Delaware.....																*	.45	.52	.04		.09							.28		.10			1.48	
Hancock.....	do.....																																	2.62	
Haskenville.....	Susquehanna.....																* 1.32	.02		.19		.38							.65		T.	.30		2.82	
Hosick Falls.....	Hudson.....					* 1.90											* .22	.32	1.38		.04								.05		.11			4.30	
Indian Lake.....	do.....																1.40	.10	.50	.05		.28							.05		.05			2.15	
Jeffersonville.....	Delaware.....			.73		T.											.12	.58	1.97	T.		.28							.07		.19			3.94	
Lake Pleasant.....	Hudson.....																		.45		.50													2.15	
Liberty.....	Delaware.....				.37												.78	1.68	1.50	.05	.12													4.67	
Little Falls.....	Mohawk.....																.11	.67	.45	.14		.29											2.98		
Mohawk Lake.....	Hudson.....				.11	* 1.13	.28										* 2.75	* 2.03			.04													6.34	
Morehouseville.....	Mohawk.....																1.28	.22	.23		.03													2.18	
Mount Hope.....	Coast.....				1.10	.70						T.	T.				2.70	.22	.30		.12													7.14	
Newark Valley.....	Susquehanna.....																.40	.51	.70	.10	T.	.15							.55		.10			2.51	
New Berlin.....	do.....																.48	.28	.18	.78	.08	.01	.30							.14		.01		3.98	
New Lisbon.....	do.....																.31	.28	1.16	.31		.31								.12				4.69	
New York City.....	Coast.....				1.54	T.	.21	.14						.52			.04	.70	.76	T.	T.	.02										.01			7.94
North Creek.....	Hudson.....					* .12								.20			* 1.41	* .72												.03				2.48	
Northville.....	do.....				.10							.10					.57	1.35	.19		.15													1.6	2.62
Norwich.....	Susquehanna.....																.62	1.38	.24	.02	.01	.32							.14		.03			2.76	
Oneonta.....	do.....																.13	1.00	1.06	.21	.32								.11		.12			2.95	
Oxford.....	do.....																																		



TABLE 2.—Daily precipitation for August, 1909. District No. 1—Continued.

Stations.	River basins.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Pennsylvania—Cont'd.																																		
Kennett Square.....	Coast.....																2.01	.02															2.03	
Lansdale.....	Schuylkill.....																*	1.60										.77					2.74	
Lawrenceville.....	Susquehanna.....									.05							.02	.19	.04									.02					0.33	
Lebanon.....	do.....	.06					T.										.05	.13	.60	.03	.01	.33						.36					2.71	
Le Roy.....	do.....									.06							.05	.13	.60	.03	.01	.33						.11					1.63	
Lewisburg.....	do.....																.13	.12	.23		.01							.14					1.85	
Lock Haven.....	do.....	.20															.27		.97	.01								.11					2.45	
Marion.....	Potomac.....	.50												.08			.35	1.32	.15									.05			T.		0.94	
Mauch Chunk.....	Delaware.....													.14			.35	.45															1.58	
Mifflintown.....	Juniata.....																.11	.35	1.06									.02		.01			2.33	
Milford.....	Delaware.....		.01		T.									.26			T.	1.21	.58	.03		.03	.02					.01		.07			2.25	
Montrose.....	Susquehanna.....																T.	.05	.31	.08		.06	.15					.45		.15			2.89	
Mountain House.....	Juniata.....	T.															.55	.60	.70	.25	.18							.03		.20	.30		2.87	
New Germantown.....	Susquehanna.....													.10			.12	.90	1.30	.06				.21									1.72	
Ortsville.....	Delaware.....																.13	.96	.18														1.95	
Philadelphia (1).....	do.....				.32												.02		1.57	T.													3.02	
Philadelphia (2).....	do.....				.45												.22		2.30	.05													3.04	
Philadelphia (3).....	do.....				.29													.23	.30	.05													3.04	
Pocono Lake.....	do.....										.07						.12		.55	.41	.09	T.		.03									1.61	
Point Pleasant.....	do.....																.16		2.38	.31													3.41	
Pottsville.....	Schuylkill.....																.01	.13															0.34	
Reading.....	do.....	.01																.26	.06														0.33	
Renovo.....	Susquehanna.....	T.															.01	.20	1.20										.45	T.		.26	2.12	
Seranton.....	do.....						.01			.09							.05	.27	.15	.12	.03		.13						.02		.13	.22		1.22
Seisholtzville.....	Schuylkill.....	.11															.12		.73	.06													1.10	
Selinsgrove.....	Susquehanna.....						T.										.01	.07	.13	.47													2.80	
Shawmont.....	Schuylkill.....				.19													.25	.20														3.21	
Smiths Corners.....	do.....																.08		.37														0.46	
Spring Mount.....	do.....																	.15	.89	2.61	.04		.07										4.10	
State College.....	Susquehanna.....																	.05	.45	.40	T.		.31	.01									2.22	
Towanda.....	do.....									.40								.06	.92	.07	.03		.12										1.51	
Wellsboro.....	do.....									.02									1.76														1.80	
West Chester.....	Coast.....		.02															.12	.20														1.26	
Wilkes-Barre.....	Susquehanna.....									.12								.06	.65	T.	.60												1.40	
Williamsport.....	do.....	T.																.06	.65	T.	.60												1.40	
New Jersey.																																		
Ashbury Park.....	Coast.....				2.53				.22								.40		2.51	.89	T.		.01	.08									6.80	
Atlantic City.....	do.....		.63		T. 2.40												.02		.49	.01													2.95	
Bayonne.....	do.....				.46	.31		.24		T.							.28		4.01	1.51	.01		.12										6.96	
Belvidere.....	Delaware.....																.31		*	.62	.40		.41										1.88	
Bergen Point.....	Coast.....				.70	.11		.43		T.							.24		4.73	1.74	T.		.18										8.13	
Boonton.....	Passaic.....																		1.63														2.43	
Bridgeton.....	Coast.....	.08			.72														1.66	.04													2.44	
Burlington.....	Delaware.....				.32												.08		1.66	.04													2.59	
Canton.....	Coast.....	.11			.65		.05												1.65	.05													3.33	
Cape May City.....	do.....		.15	.01	T. 2.90												.05		.10	.96													4.33	
Cape May C. H.....	do.....		.14		T. 2.40														.62														3.16	
Charlotteburg.....	Passaic.....				.20			.33			T.						.08		*	4.53													5.14	
Chatham.....	do.....																																1.63	
Clayton.....	Coast.....	.03			.65														.88	.07													9.07	
College Farm.....	do.....				.45												.18		6.15	2.04	.05		.20										3.16	
Culver's Lake.....	Delaware.....				.01						.10						.55		.01	.49	.79	.08											4.63	
Dover.....	Passaic.....				.23														*	4.60	.05		.09										5.87	
Elizabeth.....	Coast.....				* .67	* .42				T.							.15		*	4.56	T.												3.65	
Englewood.....	do.....																																2.31	
Flemington.....	do.....				.10	T.											.15		*	2.82	.49												1.97	
Freehold.....	do.....																		1.43														2.29	
Friesburg.....	Coast.....	.03			.70		.06												1.33	.09													5.36	
Haddonfield.....	Delaware.....				.55														1.34	.62													2.86	
Hammonton.....	Coast.....	.05			.80														*	1.34	.62												7.18	
Hightstown.....	Delaware.....				.60														3.03	.91	.04												6.62	
Imlaytown.....	do.....																		3.03	.91	.04									</				





TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 1, North Atlantic States.

Date.	Maine.												Massachusetts.												Providence, R. I.				Connecticut.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Eastport.				Greenville.				Orono.				Portland.				Rumford Falls.				Van Buren.								Concord, N. H.				Amherst.				Boston.				Middleboro.				Nantucket.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.

TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 1—Continued.

Date.	New Jersey.								Martinsburg, W. Va.		Maryland.								Washington, D. C.		Millsboro, Del.		Virginia.					
	Asbury Park.		Atlantic City.		Hightstown.		Newton.				Baltimore.		Dartington.		Frederick.		Westernport.						Culpeper.		Fredericksburg.		Staunton.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
1	75	68	72	68	83	67	78	60	79	71	75	70	79	61	79	64	81	65	74	67	74	67	79	68	85	67	.....	.....
2	72	68	74	67	83	62	82	57	86	69	82	65	80	61	85	60	85	61	80	63	77	62	84	62	80	64	.....	.....
3	72	66	72	69	79	55	82	51	83	55	78	63	78	58	82	56	81	54	76	61	71	65	76	60	75	61	85	.....
4	69	58	69	59	69	58	67	51	83	55	76	64	76	57	82	59	84	59	78	62	69	58	82	59	79	61	.....	58
5	77	58	83	55	84	57	84	52	87	59	82	61	85	50	85	59	87	57	84	59	83	53	88	63	86	63	85	.....
6	73	61	73	64	84	57	81	56	88	59	82	67	82	64	86	62	88	58	86	63	78	65	86	63	83	60	86	60
7	78	64	78	68	91	63	93	55	96	63	88	68	87	62	94	63	92	60	90	65	89	62	89	65	87	68	86	61
8	84	69	86	70	96	65	96	61	97	63	94	71	91	65	96	66	95	59	92	68	91	66	91	63	82	64	88	63
9	95	73	82	73	98	70	95	67	98	66	98	72	98	67	97	69	94	61	96	71	92	71	97	63	95	67	92	76
10	87	71	86	67	89	67	86	64	92	70	92	71	87	73	92	73	89	69	90	74	89	69	92	68	91	68	89	66
11	81	60	71	59	82	51	80	59	86	55	80	62	82	57	84	58	85	49	82	60	77	59	84	57	83	60	80	56
12	73	59	74	66	78	59	81	51	69	62	71	68	75	61	71	62	67	60	72	64	76	55	73	62	74	60	65	60
13	71	65	70	67	85	54	76	53	86	58	74	65	73	63	78	63	89	61	74	63	74	65	83	63	76	63	85	58
14	70	66	74	64	80	55	76	47	77	62	79	63	79	57	76	64	85	61	78	62	76	63	77	65	79	61	71	64
15	70	67	75	67	80	50	74	55	69	65	73	63	74	55	73	66	73	65	72	64	78	58	72	59	74	63	70	64
16	69	66	70	66	69	63	67	60	85	64	83	68	79	65	85	64	84	65	84	64	84	66	88	67	85	67	89	64
17	68	60	69	61	65	58	63	53	79	63	72	65	69	60	75	61	79	62	76	63	72	61	81	63	81	64	78	61
18	71	59	74	60	75	59	74	55	79	62	79	64	77	58	77	63	77	60	78	62	85	58	78	62	80	61	78	60
19	80	61	80	61	87	57	86	55	84	63	86	67	86	58	85	62	83	58	85	65	88	57	85	61	87	60	84	58
20	79	66	83	66	88	58	85	53	89	58	88	69	88	58	85	61	84	52	87	66	91	64	89	60	90	65	86	56
21	74	64	74	65	80	60	79	53	81	55	80	65	80	58	80	57	79	52	78	62	81	61	87	61	90	61	78	55
22	73	59	71	57	78	49	76	45	79	49	78	58	79	58	81	50	79	50	80	55	76	56	80	52	81	55	80	48
23	80	56	82	63	87	51	85	58	85	51	86	58	86	50	85	52	85	46	83	53	86	48	85	50	87	50	84	50
24	78	61	78	66	90	55	88	52	90	51	88	63	87	50	89	58	91	60	88	61	89	58	90	53	90	53	89	52
25	89	66	79	69	89	62	94	64	93	55	92	65	91	60	93	62	93	52	91	62	89	61	92	56	94	55	92	58
26	87	69	82	71	88	66	84	63	87	61	90	70	88	68	88	67	89	59	88	66	91	65	90	61	93	61	89	63
27	85	67	86	69	87	58	87	60	80	65	91	70	88	68	91	66	91	62	89	66	93	70	90	65	91	67	93	62
28	81	62	78	62	88	49	86	53	79	62	87	67	87	56	89	60	89	60	92	64	93	67	93	63	94	63	94	63
29	88	71	86	73	90	58	83	65	79	65	89	70	86	56	84	67	80	63	88	67	93	67	92	68	94	55	89	61
30	74	60	73	64	78	54	80	50	78	54	79	64	82	52	79	53	78	46	80	60	76	60	78	56	80	59	79	50
31	73	55	72	66	78	47	76	42	79	51	78	65	79	53	80	70	80	48	79	58	76	57	77	55	81	55	78	50
Mean	77.3	63.7	76.6	65.2	83.2	57.8	81.4	55.2	84.0	59.7	82.9	65.8	82.5	59.3	84.1	61.2	84.4	57.6	82.9	63.2	82.5	61.7	84.5	61.1	84.6	61.6	83.6	58.8



## Climatological Data for August, 1909.

## DISTRICT No. 2, SOUTH ATLANTIC AND EAST GULF STATES.

CHARLES F. VON HERRMANN, District Editor.

## SUMMARY.

The relatively cool, rainy weather that characterized July in the South Atlantic States continued during the first half of August, 1909, but about the 17th a change to drier, warmer weather took place. The rainy weather early in the month was associated with indefinite barometric depressions, or often merely normal pressure, in the States bordering the Atlantic and Gulf of Mexico, while successive areas of high barometer prevailed in the vicinity of New England. The general drift of air was probably continually from the moist Atlantic westward over the land, as is sufficiently indicated by the prevailing winds which were from the northeast in Virginia, North Carolina, South Carolina, and Georgia, from the southeast in Florida, and from the east in Alabama.

After the passage over Virginia of the marked disturbance of the 17th the areas of high pressure from the north took a more southerly course within the coast line (often settling over western North Carolina and eastern Tennessee) while low pressure prevailed over New England; the drift of air was then from the west or southwest. A series of shallow depressions continued to exist in the South from the 17th to 20th, but they brought very little rain or even cloudy weather, and intense insolation caused very high temperatures, especially on August 18 when maximum temperatures exceeding  $100^{\circ}$  occurred at some points in all the States of this district, except Virginia where the highest was  $99^{\circ}$ . Florida alone did not share in the period of fair weather, summer showers continuing the entire month. There was a notable absence of severe local storms throughout the district.

## PRESSURE.

The shallow barometric depression (29.90 to 30.00 inches) central on August 1 in western North Carolina and eastern Tennessee caused heavy precipitation, especially on the eastern slope of the Blue Ridge in western North Carolina and Virginia, from the 1st to the 3d; subsequently the pressure rose rapidly over the entire district under the influence of a marked area of high barometer (30.40 inches) over New England, but unsettled, showery conditions continued. The barometer remained generally near or slightly above normal until the 15th, when a storm appeared in the Lake region (29.70 inches) which moved southeast to western Pennsylvania, and thence to the vicinity of Norfolk, Va., the pressure falling to 29.54 inches on August 17 at Hatteras, N. C. The lowest pressure for the month was recorded nearly everywhere on the 17th and the period of rainy weather now terminated over most of the district. The marked area of high pressure that moved from the Northwest to the Lakes during August 21 and thence southward to the southern Appalachian region dominated the weather throughout most of the district until August 28. The maximum pressures were generally recorded from the 23d to the 25th. Very warm weather occurred again on the 28th and 29th under the influence of a moderate depression over the Lakes. The month closed with light showers due to a moderate barometric depression over central and northern Florida.

## TEMPERATURE.

The temperature during August was below normal over most of Virginia, North Carolina, and South Carolina and at several stations in central Georgia and eastern Alabama, as well as in the extreme southern portion of Florida. The greatest deficiency was a little over  $4^{\circ}$  at some stations in North Carolina. In the central portions of South Carolina, in southern Georgia, as well as over most of Florida, Alabama, and

Mississippi the temperature was above normal, several small areas showing departures of  $2^{\circ}$  or more above. Moderate temperatures prevailed during the first decade; then the temperature began to rise everywhere, and a period of extreme heat prevailed from the 16th to the 19th. A period of cooler weather followed, the lowest temperatures for the month being generally recorded between the 22d and 26th; then another pronounced warm wave prevailed from the 27th to 29th. During these periods of greatest warmth, maximum temperatures of from  $100^{\circ}$  to  $108^{\circ}$  were experienced. In Mississippi, especially, the weather was extremely warm and dry; in western Florida (Pensacola) during the 17th and 18th stock (dray mules) suffered severely, many perishing; in Alabama and Georgia, as well as farther north the night temperatures were moderate and gave relief.

The monthly mean temperatures ranged from  $66.5^{\circ}$  at Hot Springs, Va. (altitude 2,195 feet), to  $84.6^{\circ}$  at Brunswick, Ga., on the south Atlantic coast. The highest temperature observed was  $108^{\circ}$  on August 18, at Flomaton and Pushmataha, Ala., and the minimum was  $41^{\circ}$  on the 23d at Mount Airy, N. C.

## PRECIPITATION.

The average precipitation for August was below the normal throughout the district, with the exception of Florida. The greatest deficiencies occurred in portions of South Carolina, Georgia, and Alabama. In Florida the "rainy season" continued almost without interruption, rain falling at some place or other on every day of the month, but the average excess in precipitation was small. The regions of greatest excess were as follows: In Florida, from Volusia County on the middle-east coast southwest to Lee County on the west coast, there was an excess of from 2 to 7 inches; here the greatest amounts for the month were Fort Myers, 14.59 inches and Bartow, 14.38 inches. In Georgia two limited regions received an excess of from 2 to 4 inches, one in the north-central portion, the other on the southeast coast, where Valona received 15.34 inches, the heaviest recorded anywhere in the district; two other stations in Georgia had a total monthly amount exceeding 10 inches (Eatonton and Newnan). The only other places having as much as 10 inches were Georgetown S. C., which lies near the coast, and Bay St. Louis and Biloxi, Miss., near the Gulf coast. The rainfall occurred as already stated, mostly during the first half of the month.

Excessive rains (2.50 inches or more in twenty-four hours) occurred at only two stations in Virginia, at 14 stations in North Carolina, at 8 stations in South Carolina, at 10 stations in Georgia, at 14 stations in Florida, at 7 stations in Alabama and at 6 in Mississippi.

The areas of deficient precipitation were much larger, especially in Virginia, Alabama, and parts of Mississippi. The State average rainfall for Mississippi was the least since 1900, many stations in the northern part of the State receiving less than half an inch; in Alabama the average rainfall for August was less than that of the present month only five times during the past eighteen years; in South Carolina the total for the month was less only in August, 1896, and August, 1900. Generally from Georgia northward during the latter portion of the month there was a period of ten days or more of fair weather at most stations, while to the south and west the rainfall was light and scattering. The average number of days with rain was about 8 over most of the district, except in Florida where the average was 15 rainy days. The number of thunderstorms was not very large nor were any of the storms especially violent.

The following statistical data with reference to rainfall is of interest. The largest monthly total for August, 1909, was 15.34 inches at Valona, McIntosh County, Ga., the least was 0.46 inch at Okolona, Chickasaw County, Miss. The heaviest twenty-four-hour fall was 6.10 inches in five hours at Aiken, S. C., on the 5th. The largest number of rainy days was 23 at Arcadia and Tampa, Fla. Atlanta received 1.50 inches in thirty-five minutes on the 2d, Montgomery 1.00 in thirty minutes on the 7th, and Columbia 1.03 inches in 31 minutes on the 6th.

#### RIVER CONDITIONS.

During the first half of the month the rivers throughout the district maintained their highest stages, after which there was a gradual decline to the lowest stages near the close of the month. The rivers of Virginia were low throughout the month. Heavy rains during the first few days of the month caused a rapid rise in the lower Ronoake and Cape Fear rivers in North Carolina, but only Fayetteville on the Cape Fear reported a reading above the flood stage, namely 47.6 feet on the 5th (flood stage 38 feet). Successful warnings were issued, the rivers subsided rapidly and no damage was done. In South Carolina a very moderate flood occurred in the Santee River, the flood stages being slightly exceeded at Camden on the Catawba and at Ferguson and Rimini on the Santee. There was also a moderate flood in the Pedee River due to excessive rains on the 2d and 3d in western North Carolina, the river reaching 33 feet (6 feet above the flood stage) at Cheraw on the 4th. The crest of the flood was two weeks in reaching tide

water, but the flood stage was not maintained, as the highest stage reached at Smiths Mills, 98 miles below Cheraw, was only 13.9 feet, or 2.1 feet, below flood stage. Warnings were issued sufficiently in advance to permit the safeguarding of property.

#### MISCELLANEOUS PHENOMENA.

The prevailing winds were from the northeast in all the States bordering the Atlantic except in Florida where the prevailing direction was southeast; in Alabama the prevailing direction was east, and in Mississippi southeast. The average hourly wind velocity at regular stations exceeded 10 miles at the following places only: Jupiter, Fla., average hourly velocity 11.6 miles, Pensacola 11.9, and Sand Key, Fla., 13.0 miles; at Hatteras, N. C., it was just 10 miles. The maximum wind velocity for the month was 63 miles from the south on the 19th at Pensacola, Fla., the effect of a small disturbance near the mouth of the Mississippi which did not develop into a distinct storm. The only other points reporting a velocity of 40 miles or more an hour were: Jacksonville, Fla., 46 miles from the northwest on the 19th; Key West, 40 miles from the west on the 17th; Sand Key, 56 miles from the southeast on the 24th, and Savannah, Ga., 40 miles from the northeast on the 31st. There was abundant sunshine over most sections, the average number of clear days being about 16 in all States, except Georgia and Florida where it was 14 and 10 respectively. Fog and hail occurred at a few widely separated stations on several days.



TABLE 1.—Climatological data for August, 1909. District No. 2, South Atlantic and east Gulf States.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Virginia.																				
Arvon.	Buckingham.	350	5	75.1	- 0.4	94	29	53	22†	33	2.17	- 2.23	0.93	0.0	8	16	10	5	w.	Rev. Plummer F. Jones.
Ashland.	Hanover.	221	18	72.8	- 2.9	94	29	50	23	36	2.85	- 1.71	1.43	0.0	7	11	13	7	s.	E. L. C. Scott.
Buchanan.	Botetourt.	820	5								2.49	- 1.94	0.99	0.0	8					D. D. Boose.
Callville.	Brunswick.	250	15	73.2	- 3.0	94	29	54	21	31	5.20	+ 0.01	1.21	0.0	11	16	9	6		F. M. Gage.
Cape Henry.	Princess Ann.	20	35	74.6	- 2.3	93	29	60	24	23	3.91	- 2.19	1.36	0.0	9	19	5	7	ne.	U. S. Weather Bureau.
Charlottesville.	Albemarle.	800	20	73.3	- 1.2	97	28†	54	22	30	2.40	- 3.11	1.45	0.0	5	9	17	5	e.	Leander McCormick.
Clarksville.	Mecklenburg.	115	15								8.75	+ 3.23	2.70	0.0	8					J. Henry Ligon.
Columbia.	Fluvanna.	246	11	73.0	- 2.0	94	29	51	23	33	1.92	- 3.18	1.12	0.0	9	17	7	7	ne.	Agent, C. & O. R. R.
Danville.	Pittsylvania.	413	9								9.70	+ 5.16	2.66	0.0	8					C. G. Watkins.
Dinwiddie.	Dinwiddie.	267	5																	W. N. Colson.
Hampton.	Elizabeth City.	5	26	75.2	- 2.8	89	9†	60	23	21	5.39	+ 0.47	1.38	0.0	9	20	2	9	ne.	Hampton Institute.
Hot Springs.	Bath.	2,195	17	66.5	- 2.5	86	27	43	23	34	1.90	- 1.69	0.71	0.0	8	19	9	3		James P. Scott.
Ivor.	Southampton.	87		72.9		95	29	48	22	37	4.50		1.00	0.0	9					Agent N. & W. Ry.
Lexington.	Rockbridge.	1,060	32	71.9	- 1.4	94	9†	45	23	41	0.98	- 1.98	0.62	0.0	7	23	5	3		Virginia Mil. Institute.
Lynchburg.	Campbell.	685	38	73.6	- 1.2	95	27	50	23	35	3.20	- 1.02	1.09	0.0	8	13	12	6	nw.	U. S. Weather Bureau.
New Castle.	Craig.	1,300									2.69	- 2.62	1.04	0.0	4					Miss J. L. Martin.
Newport News.	Warwick.	55	6	75.4	- 1.9	93	29	57	23	27	5.58	- 1.44	1.24	0.0	11	20	4	7	ne.	Ernest W. Sniffen.
Norfolk.	Norfolk.	91	39	74.6	- 2.1	91	29	60	23	25	5.81	- 0.24	2.33	0.0	10	14	10	7	ne.	U. S. Weather Bureau.
Norfolk (Diamond Spgs).	Princess Anne.	20		73.6		92	9†	52	23	37	3.82		1.43	0.0	6					Virginia Experiment Sta.
Petersburg.	Dinwiddie.	60	22	74.0	- 2.9	94	26	53	23	31	5.37	+ 0.79	1.97	0.0	11	17	0	14	s.	Central State Hospital.
Randolph.	Charlotte.	334	5								6.76		1.50	0.0	10					W. B. Spencer.
Richmond.	Henrico.	144	30	74.2	- 3.3	95	29	58	23	30	4.01	- 0.40	2.04	0.0	11	9	14	8	se.	U. S. Weather Bureau.
Rocky Mount.	Franklin.	1,150	15	72.3	- 3.2	93	27†	45	23	37	4.68	+ 0.93	1.30	0.0	7	22	0	9	sw.	G. W. B. Hale.
Sabot.	Goochland.	125									4.31		2.48	0.0	8	17	9	5		W. A. Jacobs.
Saxe.	Charlotte.	350	6	72.8	- 0.4	99	29	48	23	37	4.99	- 0.37	1.22	0.0	9	21	0	10	sw.	State Experm. Farm.
Spottsville (near).	Surry.	15	21	74.2	- 1.9	93	29	49	23	37	5.08	- 0.72	1.76	0.0	9	14	10	7	sw.	B. W. Jones.
Williamsburg.	James City.	70	18	73.6	- 1.6	94	29	54	23	29	6.95	- 1.27	2.20	0.0	10	18	6	7	sw.	Eastern State Hospital.
North Carolina.																				
Beaufort.	Carteret.	16	7	79.2	- 0.7	91	13	63	23	21	2.98	- 3.89	1.02	0.0	10	18	7	6	sw.	H. D. Allen.
Belhaven.	Beaufort.	4		77.2		96	10	55	25	34	8.60		4.48	0.0	6	16	7	8	s.	William S. Hopkins.
Brewers.	Wilkes.	1,950	12	73.4	- 1.4	96	28	45	23	40	2.46	- 4.12	0.61	0.0	12	14	12	5	w.	W. L. Brewer.
Caroleen.	Rutherford.	806	9	76.7	- 0.9	97	28	54	23	35										S. B. Tanner.
Chalybeate Springs.	Harnett.	500	3	74.9		98	29	50	24	38	6.12		2.41	0.0	9					J. A. Smith.
Chapel Hill.	Orange.	500	51	75.4	- 1.6	96	28	53	24	36	5.47	+ 0.30	1.57	0.0	11	14	12	5	nw.	Prof. A. H. Patterson.
Charlotte.	Mecklenburg.	808	33	76.0	- 0.6	95	29	59	22	26	5.16	- 0.39	1.88	0.0	11	13	11	7	ne.	U. S. Weather Bureau.
Chimney Rock.	Rutherford.	1,150																		Dr. L. B. Merse.
Clinton.	Sampson.	156	2																	Thomas Boyette.
Eagle town.	Northampton.	66	4	74.3		93	27†	53	23	31	5.88		2.24	0.0	7	16	11	4	sw.	J. T. Elliott.
Edenton.	Chowan.	30	15																	E. R. Conger.
Fayetteville.	Cumberland.	170	22	76.9	- 0.8	97	29	54	23	35	6.86	+ 0.09	2.02	0.0	8					Frank Glover.
Goldsboro.	Wayne.	102	39	76.6	- 1.7	98	29	56	23	33	4.08	- 2.89	1.08	0.0	11					Mrs. N. B. Taylor.
Graham.	Alamance.	656	7								9.63	+ 3.14	2.76	0.0	12					Dr. W. R. Goley.
Greensboro.	Guilford.	843	28	74.8	- 1.8	97	29	55	22†	32	8.08	+ 2.74	2.45	0.0	9					A. R. Horry.
Greenville.	Pitt.	75	16								2.65	- 4.41	1.20	0.0	7					C. V. York.
Hatteras.	Dare.	11	35	77.4	- 0.8	88	10	68	23	15	4.99	- 0.85	1.61	0.0	12	20	9	2	ne.	U. S. Weather Bureau.
Henderson.	Vance.	490	16	73.2	- 4.0	93	27†	55	22	25	6.87	+ 0.62	2.69	0.0	7	14	10	7	ne.	Enoch Powell.
Kinston.	Lenoir.	46	11	77.1	- 2.4	96	27†	51	24	38	7.06	+ 0.82	2.66	0.0	11	15	13	3	s.	Rev. J. R. Hountree.
Lenoir.	Caldwell.	1,186	36	73.0	- 0.7	95	28	47	23	37	3.44	- 1.46	1.14	0.0	8	19	5	7	w.	G. M. Goforth.
Lexington.	Davidson.	810	8	75.0	- 1.4	100	29	46	24	42	6.57	- 0.82	2.95	0.0	10	16	8	7	sw.	H. R. Berrier.
Lincolnton.	Lincoln.	994	4	75.6		99	29	52	23	35	3.37		1.80	0.0	6	21	0	10	w.	L. B. Thompson.
Louisburg.	Franklin.	375	18	76.2	- 0.9	94	9†	52	24	32	4.97	- 0.73	1.56	0.0	6	19	9	3		T. B. Wilder.
Lumberton.	Robeson.	102	26	78.3	- 0.6	98	29	56	23	34	7.57	+ 1.32	2.32	0.0	13					B. M. Davis.
Manteo.	Dare.	12	4	75.3	- 2.0	88	1†	57	24	22	5.69	- 0.25	3.28	0.0	8	21	6	4	ne.	U. S. Weather Bureau.
Marion.	McDowell.	1,425	17	74.4	- 0.6	97	28	49	23	39	6.07	- 0.14	2.14	0.0	12	11	15	3	w.	Thomas McGuire.
Monroeville.	Chatham.	145	15	75.2	- 2.4	98	26	51	24	40	7.36	+ 1.23	3.10	0.0	12	18	3	10	nw.	B. J. Utley.
Monroe.	Union.	586	15	76.0	- 0.7	99	29	47	24	41	3.00	- 4.03	2.46	0.0	5	17	7	7	ne.	T. A. Ashcraft.
Morganston.	Burke.	1,135	22	74.2	- 0.6	95	28†	50	23	35	8.87	+ 3.67	2.30	0.0	10	21	7	3	se.	T. D. Judd.
Mt. Airy.	Surry.	1,048	21	68.7	- 5.1	99	29	41	23	45	2.83	- 0.26	1.49	0.0	8	19	6	6	sw.	Prof. A. H. Merritt.
Mt. Holly.	Gaston.	616	12								6.72	+ 0.91	2.44	0.0	9					John W. Holland.
Nash.	Nash.	190	5	75.0	- 2.5	95	10†	51	23†	38	6.78	+ 0.71	3.35	0.0	12	12	12	7	ne.	J. B. Roddie.
Newbern.	Craven.	12	27	76.8	- 1.4	94	10†	54	23	33	5.61	- 2.46	2.44	0.0	7					James B. Hill.
Pinehurst.	Moore.	650	5	76.4	- 1.4	97	29	55	23	33	9.49	+ 4.84	5.59	0.0	11	24	4	3	ne.	General Office.
Pittsboro.	Chatham.	480	18																	J. E. Morgan.
Raleigh.	Wake.	390	38	75.4	- 1.4	95	29	58	24	28	4.40	- 1.50	2.19	0.0	8	13	7	11	ne.	U. S. Weather Bureau.
Ramseur.	Randolph.	442	2	74.6		97	29	47	24	41	5.16		2.00	0.0	4	17	8	6	e.	P. P. Turner.
Randleman.	Randolph.	810	4								7.30		2.54	0.0	10					John R. Walton.
Reidsville.	Rockingham.	828	10	73.6	- 2.1	96	29	50	23	38	8.34	+ 2.84	2.36	0.0	10	19	0	12	sw.	E. M. Reid.
Rockingham.	Richmond.	210	14																	

TABLE 1.—Climatological data for August, 1909. District No. 2.—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
South Carolina—Cont'd.																				
Calhoun Falls.	Abbeville	508	16								3.74	- 2.41	2.35	0.0	6	25	1	5	nw.	P. J. Pfeifer.
Camden (1).	Kershaw	222	3	78.8		98	29	39	24	30	4.65	- 1.85	1.85	0.0	8	17	12	2	w.	J. B. Mickle.
Camden (2).	Kershaw	562	4								3.02	- 2.51	1.52	0.0	5	18	10	3	e.	W. C. Brown.
Catawba	York	432	4								6.84	- 1.84	1.84	0.0	10	16	3	12	n.	Jas. C. Faris.
Chappella	Newberry	432	4								3.56	- 1.92	1.92	0.0	4	19	8	4	sw.	M. C. Rivers.
Charleston	Charleston	48	39	80.2	- 0.1	94	17	71	19	20	7.81	+ 0.88	2.22	0.0	14	10	15	6	ne.	U. S. Weather Bureau.
Cheraw (1).	Chesterfield	144	21	78.8	+ 0.1	95	27	53	24	33	5.57	- 1.06	3.04	0.0	8	14	8	9	nw.	W. R. Godfrey.
Cheraw (2).	Chesterfield	144	16								5.92	- 0.60	3.34	0.0	8	14	10	7	n.	Jno H. Powe.
Clark Hill	Edgefield	456	7			80	27	60	26	24	6.07	- 2.08	2.08	0.0	6				s.	Wm. S. Middleton.
Clemson College	Oconee	859	18	75.6	- 2.7	92	29	58	23	25	7.32	+ 1.71	4.90	0.0	7	20	7	4	se.	Prof. John N. Hook.
Columbia	Richland	331	22	79.1	- 0.4	98	29	60	24	28	4.18	- 2.60	1.43	0.0	9	11	14	6	ne.	U. S. Weather Bureau.
Conway	Horry	25	17	79.8	+ 0.7	95	26	63	23	24	4.33	- 2.79	0.98	0.0	9	10	4	17	se.	P. C. Quattlebaum.
Darlington	Darlington	175	14								4.77	- 1.37	1.37	0.0	12				sw.	D. C. McCall.
Dillon	Marion	100	5	77.8		99	30	58	23	34	4.77	- 4.41	1.10	0.0	4	14	7	10	sw.	A. E. Rowell.
Effingham	Florence	100	17								3.12	- 1.65	1.65	0.0	6	19	1	11	e.	H. B. McCall.
Ferguson	Berkeley	51	2								4.37	- 1.36	1.56	0.0	9	17	4	10	ne.	D. B. Gilliland, jr.
Florence	Florence	138	21	81.4	+ 1.1	104	1	58	24	41	4.37	- 1.36	1.56	0.0	9	17	4	10	ne.	H. K. Gilbert.
Georgetown	Georgetown	12	16	79.6	- 0.7	92	27	65	22	24	11.70	+ 4.96	2.34	0.0	11	14	15	2	sw.	Wm. Alden James.
Greenville	Greenville	989	17	75.0	- 0.7	94	29	58	25	30	5.09	- 1.43	1.90	0.0	11	14	2	15	sw.	Mrs. S. A. Crittenden.
Greenwood	Greenwood	671	21	78.5	- 0.4	99	29	60	24	31	5.63	- 2.10	2.08	0.0	6	21	0	10	w.	M. M. Calhoun.
Heath Springs	Lancaster	368	8	81.2		102	29	61	22	36	3.85	- 1.96	1.96	0.0	8	17	7	7	w.	J. A. Weaver.
Jacksonboro	Colleton	13	1			94	16				5.37	- 1.55	1.55	0.0	14	7	16	8	e.	W. E. Haskell, jr.
Kingstree (1).	Williamsburg	54	21	80.4	+ 0.7	100	16	63	23	31	4.65	- 2.35	1.89	0.0	7				ne.	A. O. Matthews.
Kingstree (2).	Williamsburg	54	15								3.10	- 4.26	1.20	0.0	5	19	8	4	e.	J. A. Scott.
Liberty	Newberry	711	16	78.6	- 1.0	98	29	61	23	27	1.88	- 3.97	0.94	0.0	4	24	2	5	e.	Jno T. Boggs.
Little Mountain	Newberry	592	5	79.3	+ 1.2	99	29	58	24	32	1.61	- 4.27	1.43	0.0	9	16	5	11	e.	Dr. J. M. Sease.
Newberry	Anderson	873	4								3.86	- 1.90	1.90	0.0	5	16	4	10	e.	W. G. Peterson.
Pelzer	Berkeley	54	16								5.35	- 1.31	1.30	0.0	10	23	0	8		John M. Ward.
Pinopolis	Dorchester	100	21	79.4	- 0.4	95	1	65	24	25	5.35	- 1.31	1.30	0.0	10	23	0	8		Miss E. P. Ravenel.
St. George	Calhoun	209	21	76.8	- 2.8	91	27	61	24	24	3.17	- 2.86	0.90	0.0	10	19	0	12		G. T. Lewis.
St. Matthews	Calhoun	539	7	79.0		100	29	57	22	34	3.97	- 1.76	1.76	0.0	10	23	7	1	ne.	J. S. Wannamaker.
Saluda	Union	512	15	77.6	- 0.5	100	29	56	23	35	4.77	- 1.02	1.50	0.0	9	15	12	4	e.	Alvin Etheridge.
Santee	Williamsburg	62	14								5.06	- 2.44	1.39	0.0	9	18	2	11	e.	E. W. Jeter.
Smith Mills	Darlington	192	18	77.4	- 1.1	93	29	58	23	24	4.96	- 1.28	1.97	0.0	6	16	10	5	ne.	W. G. Walker.
Society Hill	Spartanburg	875	18	77.8	- 0.6	101	28	57	23	36	4.47	- 1.93	2.47	0.0	11	6	0	25	4	J. J. Lucas.
Spartanburg	Dorchester	75	12	79.1	0.0	93	16	61	24	24	9.54	+ 1.39	1.82	0.0	20	2	25	4	sw.	F. P. Robinson.
Summerville	Edgefield	629	16	78.2	- 1.7	100	28	61	24	33	9.67	+ 2.98	2.80	0.0	9	11	20	0	sw.	Miss E. H. Gadsden.
Trenton	Berkeley	85	23	79.0	+ 1.2	95	16	58	24	34	1.92	- 3.90	0.43	0.0	12	2	27	2	sw.	C. A. Long.
Trion	Oconee	1,061	18	76.4	+ 0.1	98	29	57	27	32	4.10	- 2.19	0.91	0.0	10	15	8	8	nw.	Ettell Gaillard.
Walhalla	Colleton	69	5	87.6		97	16	65	24	28	5.41	- 0.76	3.15	0.0	9	10	19	2	sw.	N. L. Fant.
Walterboro	Fairfield	545	20	78.4	+ 0.2	98	29	61	22	34	5.33	- 0.76	2.25	0.0	5	20	10	1	sw.	J. A. Westerberg.
Winnsboro	York	690	10	78.2	- 0.3	100	29	57	25	30	3.26	- 3.25	1.55	0.0	9	20	1	10	sw.	John W. Seigler.
Winthrop College	Hampton	23	14	8.02	- 0.3	96	14	64	25	28	4.38	- 2.56	1.55	0.0	9	20	1	10	sw.	E. R. Rivers.
Yemassee																				J. G. Hutson.
Georgia.																				
Abbeville	Wilcox	772	17	77.6	- 0.3	95	28	59	25	31	4.99	+ 0.28	1.54	0.0	11				n.	W. H. Calhoun.
Adairsville	Bartow	219	24	83.4	+ 1.5	99	17	69	24	26	2.49	+ 2.72	2.00	0.0	8				sw.	Dr. J. P. Bowdoin.
Albany	Dougherty	291	20	83.5	+ 3.1	99	27	67	24	29	3.68	- 3.88	1.28	0.0	10				sw.	Geo. C. Brosnan.
Allapaha	Berrien	362	26	81.0	- 0.1	95	17	67	24	27	2.90	- 2.30	0.92	0.0	11				sw.	Miss Gladys Lucas.
Americus	Sumter	694	32	77.8	+ 0.6	96	29	61	25	27	1.90	- 3.50	1.23	0.0	6				e.	L. A. Smith.
Athens	Clarke	1,218	44	77.8	+ 1.7	95	29	64	23	22	6.75	+ 2.28	2.49	0.0	13	14	7	10	ne.	C. D. Cox.
Atlanta	Fulton	190	43	79.8	+ 0.9	95	29	65	25	25	4.90	- 0.67	1.72	0.0	10	13	13	5	ne.	U. S. Weather Bureau.
Augusta	Richmond	119	17	84.1	+ 3.0	104	17	68	29	32	3.85	- 1.57	1.72	0.0	13				sw.	U. S. Weather Bureau.
Bainbridge	DeKalb	119	17	84.1	+ 3.0	104	17	68	29	32	3.85	- 1.57	1.72	0.0	13				sw.	Mrs. C. O. Wimberley.
Barnesville	Pike	875	1	79.1		98	29	62	23	28	1.54	- 5.33	0.69	0.0	5	11	16	4	e.	Prof. J. R. Leavell.
Blakely	Early	300	15	84.2	+ 3.3	103	18	68	47	52	1.64	+ 0.01	1.25	0.0	13				sw.	Ralph M. Hobbs.
Brunswick	Glynn	14	11	84.6	+ 2.6	103	21	70	22	31	5.17	+ 0.34	4.00	0.0	11				sw.	J. B. High.
Butler	Taylor	659	7								7.34	+ 0.34	4.00	0.0	11				sw.	Mrs. Mamie F. Wallace.
Camak	Warren	613	16	78.2	- 1.3	98	29	60	25	30	3.41	- 0.99	1.32	0.0	5				sw.	J. A. Chapman.
Canton	Cherokee	894	16								2.83	- 3.89	1.54	0.0	4				sw.	J. M. McAfee.
Carrollton	Madison	537	10								2.83	- 3.89	1.54	0.0	4				sw.	M. C. Power.
Carrollton	Carroll	12	12								2.83	- 3.89	1.54	0.0	4				sw.	Prof. J. H. Melson.
Clayton	Rabun	2,100	16	75.0	- 1.1	92	29	50	23	32	5.20	- 2.46	1.16	0.0	12	14	7	10	w.	A. J. Duncan.
Columbus	Muscogee	262	22	83.4	+ 3.2	102	28	66	26	33	1.34	- 3.88	1.00	0.0	4				e.	J. W. Long.
Covington	Newton	800	16								8.36	+ 2.93	1.92	0.0	11				sw.	Rufus Cruise.
Cuthbert	Randolph	446	10	81.6	+ 1.6	93	29	57	23	29	4.37	- 1.26	1.26	0.0	8				e.	Prof. W. McMichael.
Dahlonega	Lumpkin	1,519	17	75.2																



TABLE 1.—Climatological data for August, 1909. District No. 2—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.	Prevailing wind direction.
Georgia—Cont'd.																				
Milledgeville	Baldwin	276	21	80.1	+ 0.8	98	28	63	25	32	2.52	- 2.75	1.60	0.0	8	22	3	6	se.	Prof. O. M. Cone.
Millen	Jenkins	153	22	80.7	- 0.3	99	16	61	25	34	2.30	- 2.83	0.51	0.0	6	19	1	1	ne.	M. G. McComb.
Montezuma	Macon	292	4	80.9	+ 1.9	99	29	63	25	33	1.56	- 0.46	1.53	0.0	12	10	2	3	ne.	W. N. Drewry.
Monticello	Jasper	800	13	81.0	+ 0.9	96	28	69	25	27	2.20	- 3.90	1.00	0.0	10	26	2	3	ne.	Miss Maud C. Penn.
Morgan	Calhoun	337	17	81.0	+ 0.9	96	28	69	25	27	2.20	- 3.90	1.00	0.0	10	26	2	3	ne.	J. J. Beck.
Newnan	Coweta	959	21	78.2	- 0.2	97	29	60	25	31	11.44	+ 6.15	3.00	0.0	13	10	1	1	ne.	Mrs. I. J. Milner.
Oakdale	Fulton	810	9	78.2	- 0.2	97	29	60	25	31	11.44	+ 6.15	3.00	0.0	13	10	1	1	ne.	W. R. B. Whittier.
Point Peter	Oglethorpe	1,000	20	78.5	+ 0.3	98	29	59	26	33	1.86	- 4.21	0.84	0.0	3	17	10	4	e.	C. M. Wither.
Poulan	Worth	365	18	81.1	+ 1.0	96	17	67	29	28	3.68	- 3.99	0.75	0.0	11	17	9	5	s.	Dr. J. F. Wilson.
Putnam	Marion	10	10	80.2	- 1.9	101	27	63	26	37	1.12	- 3.68	0.55	0.0	3	17	10	4	s.	Mrs. J. M. Collum.
Quitman	Brooks	173	25	81.4	+ 0.2	97	17	69	27	24	6.97	+ 1.50	1.75	0.0	12	10	13	11	ne.	A. B. Jones.
Ramsey	Murray	1,363	16	75.9	- 1.2	97	29	61	19	25	5.06	- 0.32	1.84	0.0	10	13	11	7	sw.	D. E. Humphreys.
Resaca	Gordon	657	16	75.9	- 1.2	97	29	61	19	25	5.06	- 0.32	1.84	0.0	10	13	11	7	sw.	D. A. Norton.
Rome	Floyd	576	54	78.4	+ 0.2	99	29	57	23	35	7.67	+ 3.12	1.80	0.0	12	10	13	11	e.	W. M. Towers.
St. George	Charlton	20	18	81.6	+ 0.8	100	18	70	21	25	4.62	- 1.67	1.40	0.0	12	7	17	7	ne.	John Harris.
St. Mary's	Camden	65	59	80.4	+ 1.0	95	17	69	25	22	8.34	+ 0.84	2.71	0.0	14	9	12	10	ne.	David C. Sterling.
Savannah	Chatham	253	9	81.7	+ 0.4	97	17	65	25	29	4.66	- 1.51	1.58	0.0	11	14	16	1	ne.	U. S. Weather Bureau.
Statesboro	Bullock	750	16	78.8	+ 1.0	100	29	59	26	35	6.07	+ 1.52	1.35	0.0	10	14	9	15	se.	J. C. Cromley.
Talbot	Talbot	1,150	11	78.8	+ 1.0	100	29	59	26	35	6.07	+ 1.52	1.35	0.0	10	14	9	15	se.	Dr. W. T. Dennis.
Tallapoosa	Haralson	273	26	81.6	+ 0.6	99	17	68	29	25	6.96	+ 1.93	1.90	0.0	10	14	9	15	se.	R. M. Strickland.
Thomasville	Thomas	1,050	24	74.0	- 2.3	94	29	56	25	31	4.09	- 2.66	2.90	0.0	8	19	11	7	w.	U. S. Weather Bureau.
Toccoa	Stephens	219	4	83.1	+ 1.1	101	17	69	24	29	6.05	- 2.06	2.00	0.0	9	19	11	7	w.	E. A. Newton.
Valdosta	Lowndes	10	9	89.1	- 0.6	96	16	68	20	24	15.34	+ 8.82	3.58	0.0	13	17	7	7	sw.	Miss Annie L. Twitty.
Valona	McIntosh	630	22	79.2	+ 0.2	101	29	63	27	33	2.76	- 2.62	1.07	0.0	9	19	11	7	sw.	J. M. Atwood.
Washington	Wilkes	131	20	82.6	+ 1.0	98	14	68	26	31	5.31	- 0.88	0.99	0.0	17	10	13	11	ne.	Miss Ella B. Smith.
Waycross	Ware	86	18	78.3	- 0.8	91	15	64	23	24	3.64	- 2.18	0.90	0.0	10	19	11	7	e.	Thos. Sasser.
Waynesboro	Burke	620	21	79.9	- 0.3	97	17	63	26	32	2.91	- 2.45	0.70	0.0	12	10	13	11	ne.	Mrs. H. W. Blount.
West Point	Troup	641	9	76.6	- 1.8	93	30	54	27	36	5.01	- 0.41	1.54	0.0	6	12	8	11	ne.	E. N. Dunn.
Woodbury	Meriwether																			G. A. Wright.
Alabama.																				
Alaga	Houston	105	4	78.8	+ 2.4	97	29	59	26	32	1.86	- 0.91	0.88	0.0	8	12	8	11	e.	James L. Willis.
Anniston	Calhoun	741	18	80.0	+ 0.3	103	28	54	26	41	3.33	- 1.98	0.80	0.0	10	21	4	6	nw.	U. S. Weather Bureau.
Ashville	St. Clair	685	16	80.0	+ 0.3	103	28	54	26	41	3.33	- 1.98	0.80	0.0	10	21	4	6	nw.	George R. Cather.
Auburn	Lee	732	20	81.0	+ 2.4	101	29	63	26	33	4.07	- 0.75	1.17	0.0	8	11	9	11	ne.	James T. Anderson.
Benton	Lowndes	149	8	81.2	+ 1.6	100	17	66	24	30	2.04	- 0.86	1.52	0.0	9	16	13	2	se.	S. T. Pruitt.
Birmingham	Conecuh	700	21	80.8	+ 2.1	99	29	66	27	30	1.15	- 3.33	0.76	0.0	7	8	21	2	e.	M. J. Morris.
Boligee	Jefferson	119	5	80.1	+ 0.1	99	29	61	26	34	2.37	- 1.69	1.23	0.0	17	14	11	6	s.	U. S. Weather Bureau.
Calera	Greene	500	8	80.1	+ 0.1	99	29	61	26	34	2.37	- 1.69	1.23	0.0	17	14	11	6	s.	Guy P. Brugh.
Camp Hill	Shelby	738	8	80.1	+ 0.1	99	29	61	26	34	2.37	- 1.69	1.23	0.0	17	14	11	6	s.	L. G. Privett.
Cedar Bluff	Tallapoosa	594	5	81.2	+ 0.7	101	28	60	26	38	1.67	- 2.31	0.75	0.0	9	9	1	1	se.	Dr. Lyman Ward.
Citronelle	Cherokee	331	21	81.2	+ 0.7	101	28	60	26	38	1.67	- 2.31	0.75	0.0	9	9	1	1	se.	Joe L. Daniel.
Clanton	Mobile	590	16	81.0	+ 1.7	101	28	60	26	38	1.67	- 2.31	0.75	0.0	9	9	1	1	se.	George A. Maloney.
Clanton	Chilton	590	16	81.0	+ 1.7	101	28	60	26	38	1.67	- 2.31	0.75	0.0	9	9	1	1	se.	Wallace C. Elder.
Cordova	Walker	334	15	80.1	+ 1.2	99	17	56	26	42	3.30	- 1.26	0.90	0.0	8	18	9	4	a.	Scott Maxwell.
Cullman	Cullman	802	2	79.0	+ 0.3	97	27	57	26	37	1.23	- 1.26	0.90	0.0	8	18	9	4	a.	Eugene A. Grayot.
Dadeville	Tallapoosa	760	4	79.0	+ 0.3	97	27	57	26	37	1.23	- 1.26	0.90	0.0	8	18	9	4	a.	Dr. W. B. Fulton.
Daphne	Baldwin	18	17	81.7	+ 0.3	100	18	70	20	22	8.07	- 0.15	2.50	0.0	12	18	3	10	sw.	John H. Young.
Demopolis	Marengo	17	17	81.7	+ 0.3	100	18	70	20	22	8.07	- 0.15	2.50	0.0	12	18	3	10	sw.	George E. Pegram.
Double Springs	Winston	200	25	79.1	- 0.9	94	29	65	26	27	2.10	- 3.53	0.54	0.0	11	17	9	5	ne.	Charles D. Hudgins.
Eufaula	Barbour	285	25	81.8	+ 1.7	101	18	68	26	30	4.71	- 0.29	1.75	0.0	8	16	2	13	n.	Dr. J. B. Whitlock.
Evergreen	Conecuh	359	7	81.6	+ 2.3	101	17	60	26	38	0.92	- 0.33	0.33	0.0	4	11	15	5	n.	Robert L. Whitecomb.
Fayette	Fayette	91	7	82.9	+ 2.3	108	18	66	1	30	5.25	- 1.91	2.20	0.0	11	9	11	11	a.	W. V. Burns.
Flomaton	Escambia	520	25	81.4	+ 1.4	99	18	61	26	26	6.44	+ 2.39	3.29	0.0	7	23	0	8	n.	T. J. Farris.
Fort Deposit	Lowndes	621	15	79.8	+ 0.8	98	28	60	24	33	5.24	+ 1.25	1.26	0.0	7	13	4	14	n.	J. L. Parish.
Gadsden	Etowah	826	23	79.5	- 0.7	98	29	59	27	35	3.96	- 1.36	1.98	0.0	5	26	0	5	sw.	D. P. Goodhue.
Goodwater	Cosa	220	30	82.0	+ 2.5	98	28	68	27	28	3.19	- 1.53	1.47	0.0	11	19	5	7	sw.	D. S. Brown.
Greensboro	Hale	444	8	82.8	+ 3.1	104	27	60	27	44	0.68	- 3.28	0.36	0.0	2	23	0	0	ne.	W. E. W. Yerby.
Greenville	Butler	17	17	81.2	+ 1.7	101	28	60	26	38	1.67	- 2.31	0.75	0.0	9	9	1	1	se.	E. M. Lewis.
Hamilton	Marion	160	25	81.6	+ 1.2	96	17	66	26	29	2.96	- 1.04	1.10	0.0	6	26	0	5	e.	Prof. H. O. Sargent.
Highland Home	Crenshaw	510	12	80.4	+ 0.7	101	28	59	26	39	2.19	- 2.16	1.03	0.0	7	25	2	4	e.	Prof. Samuel Jordan.
Livingston	Sumter	4	4	81.6	+ 0.9	101	29	59	25	35	3.98	- 0.35	1.45	0.0	8	14	17	0	nw.	Robert L. King.
Lock No. 4	Talladega	1,595	2	82.6	+ 2.9	101	18	71	1	24	5.63	- 1.18	1.92	0.0	10	18	9	4	e.	U. S. Engineers

TABLE 1.—Climatological data for August, 1909. District No. 2—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.					Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Florida—Cont'd.																			
Cedar Keys.	Levy.	10	12	83.8	+ 2.2	93	14†	72	22†	18	3.79	- 5.64	1.00	0.0	13	2	27	2	J. B. Lutterloh.
Clermont.	Lake.	105	16	82.0	+ 0.7	97	1	67	31	25	8.89	+ 1.20	1.15	0.0	17	2	27	2	S. S. Fesler.
DeFuniak Springs.	Walton.	193	14	82.8	+ 2.3	100	19†	65	10	26	9.88	- 0.08	2.15	0.0	18	11	11	9	R. W. Storrs.
DeLand.	Volusia.	27	13	80.0	+ 0.5	93	17	67	24	21	11.34	- 0.05	2.05	0.0	21	7	18	6	O. B. Webster.
Eustis.	Lake.	56	17	83.0	+ 0.8	97	2†	70	22	23	8.08	+ 1.27	2.17	0.0	16	16	12	3	C. T. Smith.
Federal Point.	Putnam.	5	17	81.6	+ 0.6	98	17	68	28	29	8.68	+ 1.47	2.92	0.0	18	9	19	3	E. S. Hubbard.
Fenholloway.	Taylor.	75	3	83.8	+ 0.8	100	17†	68	19	27	1.75	- 0.55	0.55	0.0	6				J. Wigglesworth.
Fernandina.	Nassau.	10	12	81.8	+ 1.1	98	17†	72	2	22	3.02	- 2.78	1.06	0.0	12	16	6	9	W. B. C. Duryee.
Flamingo.	Monroe.	4	7																E. R. Bradley.
Fort Meade.	Polk.	125	17	81.4	+ 0.2	95	1	67	1	28	12.94	+ 3.85	1.97	0.0	20	10	9	12	G. L. Brodick.
Fort Myers.	Lee.	12	17	80.4	- 0.9	92	6	71	20†	18	14.59	+ 6.62	2.60	0.0	14	16	10	5	M. M. Gardner.
Fort Pierce.	St. Lucie.	6	8	81.6	- 0.1	98	18	71	4	23	6.25	+ 0.25	1.23	0.0	17	9	15	7	R. L. Goodwin.
Gainesville.	Alachua.	176	23	81.7	- 0.5	96	19	70	22	21	4.84	- 2.19	0.85	0.0	18	16	5	10	J. P. H. Bell.
Grasmere.	Orange.	175	13	81.4	+ 0.5	94	11	69	21†	23	8.68	+ 1.62	1.50	0.0	21	22	9	0	J. B. Escott.
Hilliard.	Nassau.	69	1	80.8		98	17†	66	1	28	5.78		1.20	0.0	13	16	9	6	D. W. Griffing.
Huntington.	Putnam.	56	12																E. C. Walker.
Hypoluxo.	Palm Beach.	4	9	82.4	+ 1.2	97	19	70	29	21	7.01	+ 1.98	1.39	0.0	20	10	15	6	G. A. Angervine.
Inverness.	Citrus.	43	8	81.2	+ 0.6	93	17†	68	22	22	9.05	+ 1.39	2.52	0.0	16	0	27	4	W. H. Miller.
Jacksonville.	Duval.	101	37	81.7	+ 1.6	97	17	71	19	22	5.18	- 1.03	1.20	0.0	19	7	19	5	U. S. Weather Bureau.
Jasper.	Hamilton.	152	11					70	1†	31	4.10	- 2.40	1.60	0.0	5				G. W. Duncan.
Johnstown.	Bradford.	125	14	82.1	+ 0.8	98	17	68	2†	28	5.34	- 3.09	1.62	0.0	15				A. M. C. Brasch.
Jupiter.	Palm Beach.	34	21	81.7	+ 0.2	95	19	72	27	21	4.53	- 1.32	1.19	0.0	20	6	22	3	U. S. Weather Bureau.
Key West.	Monroe.	14	38	81.8	- 2.0	91	11	72	25	15	8.56	+ 3.87	1.82	0.0	20	2	16	13	U. S. Weather Bureau.
Kissimmee.	Osceola.	65	17	81.4	- 0.8	94	2†	70	†	23	9.53	+ 2.35	2.09	0.0	18	7	21	3	U. S. Simpson.
Lake City.	Columbia.	210	20	81.7	+ 0.4	97	17†	68	6	24	7.23	+ 1.49	1.70	0.0	11	6	17	8	W. B. Knight.
Live Oak.	Suwanee.	109	8																D. O. Henry.
Macleenny.	Baker.	125	13	81.0 <sup>b</sup>	- 1.0	97 <sup>b</sup>	17†	68 <sup>b</sup>	29	25	6.96	+ 0.26	3.00	0.0	10				Griffing Bros. Co.
Madison.	Madison.	200	6	82.3	+ 0.0	98	17	70	24	24	5.07	- 1.90	1.50	0.0	16	2	15	14	E. J. Vann.
Malabar.	Brevard.	24	8	83.0	+ 1.0	101	19	70	1†	26	6.04	+ 1.16	1.13	0.0	18				F. F. Farley.
Manatee.	Manatee.	8	17	82.2	+ 0.6	93	1†	71	6†	21	11.34	+ 2.18	2.74	0.0	17	0	24	7	J. C. Whitaker.
Marianna.	Jackson.	80	9	82.6 <sup>b</sup>	+ 1.5	100 <sup>b</sup>	20	67 <sup>b</sup>	29	29	3.87	- 2.17	1.36	0.0	8				C. D. Behymor.
Merritt's Island.	Brevard.	20	30	82.0	+ 0.4	96	19†	72	4†	20	6.38	+ 0.96	2.11	0.0	10	13	8	10	C. D. Provost.
Miami.	Dade.	5	13	82.5	+ 0.1	96	19	72	21	22	9.44	+ 2.12	2.02	0.0	15	12	14	3	E. V. Blackman.
Middleburg.	Clay.	10	8	82.0 <sup>a</sup>	+ 1.4	99	17†	67	28	28	6.76	+ 0.59	1.60	0.0	11				G. A. Chalk.
Molino.	Escambia.	49	8	81.8	+ 1.1	102	18	68	4†	28	6.69	- 0.86	1.35	0.0	10	21	6	4	W. H. Trimmer.
Monticello.	Jefferson.	207	4	80.8	+ 1.4	95	17	70	1†	21	5.90	- 1.44	2.18	0.0	5	16	12	3	E. C. Potter.
Mt. Pleasant.	Gadsden.	260	5																Miss A. Grubb.
Newport.	Wakulla.	8	8	80.2	- 0.5	96	17†	66	29	24	3.23	- 6.74	1.35	0.0	3	24	0	7	J. W. Ladd.
New Smyrna.	Volusia.	9	21	82.0	+ 2.0	98	17	70	12	22	10.31	+ 4.61	3.18	0.0	14				F. Nordman.
Ocala.	Marion.	98	22	82.6	+ 1.4	98	17	68	28	26	9.72	+ 2.18	2.05	0.0	13	4	27	0	F. T. Schreiber.
Orange City.	Volusia.	39	19	84.1	+ 2.1	102	17	67	7	33	6.53	- 0.11	2.33	0.0	11	10	9	12	J. D. Graham.
Orlando.	Orange.	111	17	81.6	- 0.5	94	11†	71	6†	21	8.34	+ 0.98	3.23	0.0	20	3	16	12	James Thomson.
Pensacola.	Escambia.	149	31	81.1	+ 0.1	97	17	69	19	21	11.77	+ 4.61	2.93	0.0	18	8	17	6	U. S. Weather Bureau.
Plant City.	Hillsboro.	121	17	81.4	+ 0.1	95	1	70	15	23	11.56	+ 2.00	4.00	0.0	12				E. B. Trask.
Rockledge.	Brevard.	28	1	81.8	+ 0.3	95	19†	71	2†	21	7.15	- 3.45	1.68	0.0	11	18	10	3	J. H. White.
Rockwell.	Marion.	10	10	82.3 <sup>a</sup>	+ 0.3	95 <sup>a</sup>	3†	70 <sup>a</sup>	21†	23	6.15	- 3.45	1.76	0.0	16	13	16	2	Dunellon Phos. Co.
St. Andrew.	Huntington.	14	14	82.6	+ 1.0	97	18	72	1†	20	4.93	- 3.84	1.76	0.0	16	13	16	2	W. A. Emmons.
St. Augustine.	St. Johns.	19	59	81.6	+ 1.1	97	17	68	21	22	5.77	- 0.25	1.30	0.0	19	16	9	6	J. R. Palmer.
Sand Key.	Monroe.	46	6	81.3	- 1.2	94	7	70	28	20	3.67	+ 1.05	0.89	0.0	19	3	18	10	U. S. Weather Bureau.
St. Leo.	Pasco.	140	14	81.4	- 0.4	94	11	70	1†	23	7.33	- 2.86	1.59	0.0	20	4	19	8	G. Schneider.
Satsuma Heights.	Putnam.	98	1	81.2		97	17	68	28	26	6.37	- 1.13	1.00	0.0	19	2	27	2	Satsuma Co.
Switzerland.	St. Johns.	19	13	80.6 <sup>a</sup>	+ 0.3	95 <sup>a</sup>	17†	68 <sup>a</sup>	21	21	7.71	+ 1.35	2.23	0.0	18				W. C. Steele.
Tallahassee.	Leon.	192	24	80.6	+ 0.9	96	17	70	4	23	6.03	- 1.39	1.75	0.0	14	13	11	7	W. H. Markham.
Tampa.	Hillsboro.	79	19	81.4	+ 1.4	93	1	69	1	24	13.01	+ 4.42	3.74	0.0	23	4	17	10	U. S. Weather Bureau.
Tarpon Springs.	Hillsboro.	20	16	82.0	+ 0.9	94	26	69	22	23	9.97	+ 0.28	2.37	0.0	16	13	11	7	A. P. Albaugh.
Titusville.	Brevard.	6	17	83.6	+ 2.8	99	19	68	30	24	7.29	+ 2.61	1.41	0.0	18	4	14	13	F. M. Taylor.
Wausau.	Washington.	250	12	83.6	+ 2.0	103	18	69	3†	29	3.82	- 3.94	1.10	0.0	6	12	19	0	C. Jones.
Mississippi.																			
Aberdeen.	Monroe.	210	21	81.8	+ 2.4	102	28	61	27	39	0.61	- 3.32	0.34	0.0	2	19	8	4	L. D. Godfrey, Jr.
Agricultural College.	Oktibbeha.	424	19	82.2	+ 1.7	102	28	66	27	33	1.87	- 2.18	0.81	0.0	3	12	17	0	Prof. W. R. Perkins.
Bay St. Louis.	Hancock.	28	16	82.0	+ 0.4	96	17†	70	1	23	13.58	+ 6.49	4.00	0.0	12	18	5	8	Brother Stanislaus.
Biloxi.	Harrison.	24	18	83.0	+ 1.3	101	16	65	22	29	11.65	+ 4.81	2.97	0.0	15	20	4	7	Miss M. Josie Pope.
Booneville.	Prentiss.	504	15	80.2	+ 1.0	99	17†	60	22	33	1.25	- 1.89	0.60	0.0	7	15	16	0	Dr. D. T. Price.
Brookhaven.	Lincoln.	500	21	82.6	+ 1.4	104	18	68	1	31	6.34	+ 1.08	1.41	0.0	10	16	5	10	W. J. Bee.
Columbia.	Maroon.	109	5																N. R. Drummond.
Columbus.	Lowndes.	250	21	82.6	+ 1.2	103	28	63	27	38	4.40	- 0.06	1.50	0.0	7	19	5	7	J. B. Love.
Crystal Springs.	Copiah.	408	17	81.9	+ 1.0	104	18	69	1†	29	1.67	- 3.08	0.38	0.0	8	21	10</		



[illegible]

TABLE 2.—Daily precipitation for August, 1909. District No. 2—Continued.

Stations.	River basins.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
South Carolina—Cont'd.																																		
Cheraw (2)...	Pedee	.15		3.34	.02			T.	T.	.04	.01					.46	.08	T.													1.82	5.92		
Clarke Hill...	Savannah	T.	1.34	T.		2.08			1.05					.75		.60							.25										6.07	
Clemson College...	do.	4.90	.34	.08										.85		.78														.21		7.32		
Columbia...	Congaree	.85	.02			.11	1.27	.19	.03				T.	.21		T.					.17		.58								1.33	4.18		
Conway...	Waccamaw			.50	.48	.45	.60	.20	T.					.42	.50	.50																1.10	3.83	
Darlington...	Pedee																																	
Dillon...	Little Pedee																																	
Effingham...	Lynchess		1.10	.80				.40									.40																2.70	
Ferguson...	Santee							.16		1.60				.50	.10		.10	.60															3.12	
Florence...	Pedee		1.15	.08			.07	.43	T.				T.		.76	.20	1.56																3.12	
Georgetown...	Coast		1.50			.72	.94	.53	.45		1.87		2.34	1.20		.95						.65									.55	T.	11.31	
Greenville...	Saluda	T.	.65	.90	.28			.72	.02	.08			.15	.73	.12	.95	.33														.11	5.06		
Greenwood...	do.		.112	.18	.84	.09	.08	.33	T.					.07	.21																		3.63	
Health Springs...	Watauga		.15	.13	.15	.13	T.	.05	T.					T.	.07	.21																	3.85	
Jacksonboro...	Combahee		.49	.05		.79	.39	.71	.22		.29	.17	.06	1.55		.17											.08		1.96	.24	1.6	5.37		
Kingstree (1)...	Black		.55	.40	.45						1.80			1.01	.10		.25																4.65	
Kingstree (2)...	do.																																	
Liberty...	Savannah	.50	1.20	.15	.65				T.	T.		T.	T.	T.		.60																	3.10	
Little Mountain...	Saluda		.47	.94		.07	.40							.01		.05												.02					1.88	
Newberry...	do.	.60	.83	.04		.01	.01							.01		.04		.05															1.61	
Peizer...	do.	1.90	1.34	.08										T.				.02												.02		3.86		
Pinopolis...	Cooper																																	
St. George...	Edisto		1.30	.40				.70	.15	.30			1.15	.50		.50		.25	.10													5.35		
St. Matthews...	Santee	.20		.48	.32	.49	.50	.40	.08							.40		.25	.25									.05				3.17		
Saluda...	Saluda		.69	.44		1.76	.25	.15	.02	.02				.48	.08	.08																3.97		
Santus...	Broad	1.02	1.50	.03	.20	T.	.13						T.	.17	.14	.96														.62		4.77		
Smith Mills...	Pedee	T.	.81	.21	.39	1.39	.63	1.17		.36			.11	.43			.37															T.	5.06	
Society Hill...	do.		.81		.10			1.97						.33	.05	.05	.2	.47	.50											1.70		4.96		
Spartanburg...	Broad		.20	.45	.26	T.	.03	.05						.42	.02	.05	.2	.47	.50											.02		4.47		
Summerville...	Ashley		.60	.03	.01	1.61	1.38	.60	.03		.13	.49	.01	1.21	T.	.11	.01	.03	1.82	.01								.59	.03	.70	.14	9.54		
Trenton...	Edisto		2.22	.33	T.	2.80	1.20	.06	.13					.43		.15														1.45		9.67		
Trial...	Santee		.31	.09		.06	.12	.13	.20	T.		.43	.08		.11	.13					.03							T.	.23	T.	1.92			
Walhalla...	Savannah	.91	.90	.77		.37	.61		.40					.10	.19	.02	.28															4.10		
Walterboro...	Ashpeoo		3.15	.01	T.	.31	.46	.26				T.	.25		.06	.22					T.							.54		T.	.15	5.41		
Winnaboro...	Broad		2.25	.20		1.00	.08		T.					T.																1.80		5.33		
Winthrop College...	Catawba	*	*	*	*	*	*	*	* 2.49					.08	.36	T.	.22														.11		3.26	
Yemassee...	Combahee			1.13	.42			.31	.95	.14					.62		.46											.22		.13	3.84			
Georgia.																																		
Abbeville...	Ocmulgee	T.	*	.36	T.	*	.04	.20	.85	.26	.24		*	1.54	.04		*	.28												*	.10	4.90		
Adairsville...	Coosa	*	*	3.00	.33	.10		.03						1.43												.08					2.00	6.89		
Albany...	Flint	*	.02	*	.02	.03	*	.04	.20	.02	.04	T.	*	1.28	.80	.02																T.	2.49	
Allapaha...	Allapaha	*		.34	.20	*	.18	.18	.74	.17	.70			.08	*	.92	.07				.05	*		*	.02	.06						3.69		
Americus...	Flint	.30				T.			1.50	.20			.15	T.	*	.50																2.90		
Athens...	Oconee		.25	.23	.11	T.	*	.09								.02						*		.25						*	.20	1.90		
Atlanta...	Chattahoochee	.42	1.80	.72	.88	.03	T.	.04	.28		.03	1.01	T.	1.03		.16	.06				T.									.27		6.75		
Augusta...	Savannah		1.51	.20		.45	T.	.26		.25				.48	.52	.53												.56		.14		4.90		
Bainbridge...	Flint	T.	.4			*	.10	.38	.06	.49	171			.12	.02	.08	.10	.07	T.		*	.07	.27	.20	*	.02				T.		3.85		
Barnesville...	do.		1.17		.03		.15		.05																							1.54		
Blakely...	Chattahoochee	.69				.03	.27	.15						1.25		.26				T.				.50	1.02	.27	.20	.04		.04	.17	5.17		
Brunswick...	Altamaha		.45			.03	.27	.15																								1.64		
Buena Vista...	Flint	*	.08	.35	*	* 1.10	.35	.14	.16		*	.36	204.00		*	.34																7.34		
Camak...	Savannah	*	.99	*	1.32	*	.13	*	.50				T.	*	.47																*	T.	3.41	
Canton...	Coosa																																	
Carlton...	Savannah	*	1.54	.24		*	.25	.80																									2.83	
Carrlinton...	Chattahoochee																																	
Clayton...	Savannah		1.16	.16	.21		.50	.36	.26		.05		.27	.50	.72	.42	.59															T.	5.20	
Columbus...	Chattahoochee		.20	1.00				.12																							.02	1.34		
Covington...	Ocmulgee	*	.99	1.92	.60	*	.69	.18	.05	.32			.90			.34	1.80	.30												.60		8.36		
Cuthbert...	Chattahoochee	.65	.20			.14	.42	.26						1.08	.34	.18																4.37		
Dahlonega...	do.	.02	.36	.72	1.93		T.	.02						1.50	.24	.26	.16															5.26		
Diamond...	Tennessee	.64	1.24	.08	.12		T.		T.	.20			.26	T.	.21	.13	.38													10	T.	.02	.07	3.45
Douglas...	Satilla																																	
Dublin...	Oconee	*	.30	.60	*	1.04	.04	.38	1.10	T.		*	.16		T.																		3.62	
Dudley...	do.	T.	.27	.06		.41	.11	.53					T.			.10	.20																1.68	
Eastman...	Ocmulgee	*	.38	T.	1.09	*	.13	T.	*	.79	.26		*	.89	1.91	T.	1.98	.89												T.		*	11	8.43
Eatonton...	Oconee	.04	1.03	.70			4.90				1.83		1.15			.36															.09	10.10		
Elberton...	Savannah	T.	.80	.55			.65							.66		.58															.10		3.34	
Experiment...	Chattahoochee		1.01	.10		.85		.10			.55	.25		.04		.38																	3.33	
Fitzgerald...	Allapaha		.07			.10	.01	.14	.61					.04		.05	.05	.61													.04		2.05	
Forsyth...	Ocmulgee		1.01	.90							.02		1.30			*	.20																	



Stations.	River basins.	Day of month.																														Total.			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
<i>Georgia—Cont'd.</i>																																			
St. George	St. Marys				.34								.56				.29				1.40	.40	.17		.17	.08		.04		.48	.20	.49	4.62		
St. Marys	do.												.02	.07			.80	T.												.68	.20	8.34			
Savannah	Savannah	T.	.07	.16	.05	.02	.89	T.	.89	.84																							4.66		
Statesboro	Ogeechee	T.	.18	.40	.02		1.58		.82	.12			1.03	T.	.15																				
Talbotton	Chattahoochee																																		
Tallapoosa	Coosa	1.35	.40	.90	.20	.10	.40	.05	T.	.52	T.		.10	T.			.13	.15	.52			1.30	.03	.31	T.	T.							.95	6.07	
Thomasville	Ocklockonee	T.	.29	.37	.2.90	.10	.05	.03	.17				.01	1.75	T.	.13	.15	.52															6.96		
Tooeo	Savannah																.15																4.09		
Valdosta	Suwanee	.85															.05				*	2.00	.40	T.									5.15		
Valona	Ogeechee				.05	.130		.08	.76													1.94	.05	.47		1.00							.85	15.75	
Washington	Savannah		.34	.62	.32	.07	.12	.10		T.	.12						.05																.02	2.76	
Waycross	Satilla				.05	.01	*	.05	.99	.51	.75	.01					.18	T.			*	.20	.20	.03	.20	T.	.20				*	.78	3.64		
Waynesboro	Savannah		*	.50	.20	.54		.10	.32	.90	* .10						.40	*	.38															.70	2.91
West Point	Chattahoochee	.04		.62	.68	.52	.08	*	.52	.02	.01	.08					.04	*	.20																
Woodbury	Flint		.67	1.54	.49				*	1.50	.13		*	.68																				5.01	
<i>Florida.</i>																																			
Apalachicola	Coast					T.	T.			.81	.42				1.78		1.17		T.					.10	.30									4.58	
Arcadia	Peace Creek																																		





TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 2, South Atlantic and east Gulf States.

Date.	Virginia.										North Carolina.																		Charleston, S. C.	
	Lynchburg.		Norfolk.		Richmond.		Saxe.		Charlotte.		Eagletown.		Fayetteville.		Hatteras.		Newbern.##		Raleigh.		Reidsville.		Salisbury.		Wilmington.					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
1...	77	68	82	69	75	66	80	68	86	73	88	70	94	72	84	72	92	72	89	69	89	70	90	71	88	76	89	77		
2...	75	67	74	68	76	67	74	67	74	67	71	68	78	70	86	71	85	70	73	66	70	65	72	66	89	72	89	75		
3...	72	61	73	66	71	64	70	64	68	64	75	68	71	69	85	72	87	69	73	66	66	63	67	65	87	71	84	72		
4...	78	60	73	68	75	62	76	60	78	63	74	67	77	65	84	72	82	68	73	65	78	60	81	62	85	70	87	72		
5...	86	66	83	65	85	64	81	60	83	68	82	65	81	64	82	71	83	65	84	64	87	64	85	64	83	70	84	75		
6...	87	64	82	67	84	64	88	62	87	68	82	63	90	67	85	73	86	66	89	67	80	62	89	66	86	71	86	73		
7...	86	68	84	69	86	67	85	65	86	68	84	66	88	68	80	72	87	67	86	69	85	66	87	67	79	72	84	75		
8...	89	66	88	71	90	66	88	63	87	66	87	66	85	69	84	73	86	68	83	69	89	61	90	65	81	71	81	74		
9...	95	70	90	70	94	70	93	66	89	68	89	69	92	68	85	74	90	67	90	68	93	68	95	67	90	70	83	75		
10...	89	67	87	72	90	76	93	68	92	70	91	72	96	70	88	73	94	69	92	72	90	69	93	70	91	72	89	74		
11...	79	64	75	67	80	65	81	65	82	72	79	68	87	70	81	69	86	70	82	68	79	65	82	65	85	74	92	74		
12...	68	62	75	66	72	62	71	61	86	70	75	64	89	64	76	72	85	65	81	65	77	62	86	67	86	68	85	75		
13...	85	62	79	68	78	63	80	60	83	68	80	69	88	70	87	73	90	66	83	67	79	65	88	65	90	71	88	76		
14...	84	68	76	68	78	65	87	63	82	73	78	67	77	70	82	72	80	68	78	69	82	61	78	73	79	73	90	74		
15...	69	65	77	68	75	66	73	65	84	71	78	66	84	68	82	73	81	66	72	67	72	65	78	71	81	70	85	75		
16...	90	68	83	70	86	68	88	68	84	70	82	71	89	70	83	72	91	69	85	70	80	70	91	69	86	72	91	71		
17...	82	66	79	71	81	65	83	64	86	72	82	69	90	71	85	72	89	69	86	71	86	67	88	61	88	72	94	75		
18...	83	62	82	66	84	65	84	62	87	68	85	65	88	63	83	68	90	63	86	65	85	65	88	73	88	70	92	78		
19...	85	64	82	70	84	65	84	59	84	67	83	64	89	65	86	72	90	63	85	66	85	63	92	62	89	70	90	71		
20...	88	65	88	69	88	68	88	59	88	67	88	64	91	64	85	72	90	65	89	65	83	63	90	61	85	71	86	76		
21...	80	60	78	70	80	65	81	59	84	65	84	66	88	64	82	74	90	67	84	66	81	60	84	60	86	72	85	76		
22...	80	53	76	66	80	58	80	50	80	59	82	59	85	61	78	69	82	63	82	61	80	54	84	53	81	66	81	73		
23...	83	50	80	60	84	58	83	48	82	59	82	53	87	54	78	68	87	54	84	60	84	50	85	52	82	60	81	74		
24...	88	54	86	61	86	60	84	49	86	60	85	54	89	57	82	69	88	57	86	58	88	51	90	53	83	64	83	72		
25...	93	58	86	65	89	61	89	51	87	62	87	58	90	55	83	68	87	59	87	62	91	53	93	55	84	66	83	73		
26...	91	64	90	67	93	63	94	60	90	66	90	64	94	60	84	70	92	61	90	65	94	62	95	62	86	71	86	74		
27...	95	67	96	71	92	73	92	64	92	72	93	69	95	68	86	75	93	65	92	71	93	69	93	67	90	73	90	75		
28...	95	67	98	68	99	70	94	66	93	70	90	65	95	69	87	73	94	65	92	71	94	65	98	66	88	71	87	75		
29...	93	66	91	69	95	68	99	66	95	71	93	68	97	68	85	71	93	67	95	70	96	67	98	66	86	72	85	75		
30...	80	63	77	67	80	62	82	65	80	68	81	65	83	64	82	72	87	67	79	68	80	68	83	67	84	69	84	72		
31...	82	61	78	66	84	63	87	58	82	65	83	62	85	65	78	69	84	67	82	64	86	63	85	63	77	69	78	72		
Mns	83.8	63.4	81.5	67.7	83.4	65.2	84.0	61.5	84.7	67.4	83.3	65.3	87.9	65.9	83.2	71.5	87.8	65.7	84.3	66.6	84.2	63.1	87.3	64.3	85.3	70.3	86.2	74.1		

Date.	South Carolina.										Georgia.																		
	Columbia.		Conway.##		Georgetown.		Greenville.##		Newberry.		Society Hill.		Trotter.		Adairsville.##		Albany.##		Atlanta.		Augusta.		Dahlonega.		Macon.		Savannah.		
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
1...	92	73	93	74	91	77	84	70	93	73	89	75	92	73	93	71	88	70	92	73	85	69	87	73	92	74			
2...	87	71	95	75	92	72	71	70	82	74	85	70	94	72	90	72	78	68	88	70	85	69	82	71	90	73			
3...	79	69	86	70	89	69	71	65	78	70	82	66	82	68	82	67	90	74	79	68	80	69	73	65	85	70	90	72	
4...	85	67	87	68	85	72	75	64	84	66	81	68	86	68	81	69	96	71	79	68	85	69	75	63	86	68	85	71	
5...	83	71	81	70	82	72	82	65	89	71	82	71	83	66	89	67	96	72	83	68	81	72	87	63	88	70	86	75	
6...	89	64	87	72	86	70	83	68	91	68	87	67	91	69	89	68	95	72	86	70	89	71	87	64	90	70	86	74	
7...	83	69	86	70	83	72	80	68	83	70	85	70	84	69	83	68	93	73	80	68	83	70	89	65	84	72	83	73	
8...	80	70	82	70	82	71	80	68	84	70	81	68	80	70	83	68	91	73	77	69	81	72	80	67	79	72	81	74	
9...	90	68	92	70	87	73	86	67	92	65	87	72	88	70	87	66	84	73	86	67	88	70	88	64	85	72	80	71	
10...	94	70	94	71	92	76	88	67	95	70	90	75	92	69	91	63	92	72	87	71	92	71	91	65	91	71	87	73	
11...	91	74	90	75	92	74	85	68	91	73	86	70	92	71	92	69	96	73	88	72	92	73	87	68	93	72	92	74	
12...	88	74	90	70	87	73	86	71	89	74	86	74	90	71	89	71	96	75	86	72	88	73	86	70	90	74	91	74	
13...	92	74	92	72	88	75	86	71	93	71	87	75	92	70	93	70	97	75	90	72	91	71	87	66	91	73	89	71	
14...	92	73	82	74	85	73	86	68	96	72	85	72	93	72	89	69	92	70	88	70	92	72	84	68	92	73	92	75	
15...	88	71	88	72	86	76	82	69	94	73	85	75	89	70	92	71	95	74	91	74	88	74	86	68	93	73	91	73	
16...	91	74	94	74	90	73	81	73	89	76	87	73	95	72	91	74	97	74	85	74	92	72	86	70	94	75	94	74	
17...	93	72																											

TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 2—Continued.

Date.	Georgia.						Alabama.												Florida.									
	Thomasville.		Waycross.##		West Point.##		Anniston.		Bermuda.		Birmingham.		Eufaula.##		Mobile.		Montgomery.		Tuscaloosa.##		Uniontown.		Avon Park.		Fort Myers.		Gainesville.##	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	90	70	92	73	89	71	89	73	91	69	87	72	81	70	87	71	89	72	91	69	96	71	91	74	90	71		
2...	92	69	93	69	83	73	86	73	85	71	85	74	86	71	84	75	86	74	95	72	90	69	94	72	92	71		
3...	93	71	95	72	83	70	82	71	90	72	80	73	83	71	87	76	83	73	87	73	83	69	90	71	90	75		
4...	93	69	93	69	85	69	87	72	93	68	88	74	89	68	90	75	92	71	93	73	92	69	84	74	80	74		
5...	93	69	96	71	83	70	87	69	92	71	88	72	86	69	90	76	90	73	94	73	95	69	90	74	84	74		
6...	88	71	93	73	90	70	91	67	93	70	90	70	84	70	92	74	88	70	92	72	91	69	92	73	92	74		
7...	89	72	91	73	83	68	82	70	90	70	84	69	85	70	84	74	88	70	91	70	87	70	90	74	90	74		
8...	92	74	88	73	84	72	83	70	88	70	82	72	85	70	90	74	86	71	87	72	85	70	88	74	91	74		
9...	89	72	85	73	82	71	86	71	84	72	86	70	80	71	84	74	84	73	89	70	86	71	88	73	90	74		
10...	83	72	91	72	89	70	89	67	85	71	89	70	85	69	80	74	89	71	91	70	87	70	92	73	88	74		
11...	92	70	95	72	93	70	92	69	89	70	89	71	88	69	81	74	92	74	93	72	90	73	94	74	90	73		
12...	93	73	93	75	92	75	88	72	90	70	88	71	88	71	84	74	89	73	94	74	89	72	91	74	89	73		
13...	93	72	96	73	91	74	91	71	94	69	90	72	89	72	89	74	92	74	95	72	92	72	90	70	87	73		
14...	94	72	98	73	94	74	92	71	93	73	92	74	92	74	92	77	94	76	97	75	93	75	95	71	89	74		
15...	93	72	96	74	89	75	93	74	96	73	94	74	90	73	94	77	92	77	97	74	94	75	93	74	88	75		
16...	96	72	98	74	94	74	89	73	97	73	91	76	93	73	97	79	96	74	98	77	96	75	87	75	84	74		
17...	99	77	98	76	97	75	93	68	100	77	97	76	93	72	95	80	102	78	99	75	99	75	80	75	86	76		
18...	97	75	98	76	95	69	90	65	100	74	94	70	92	72	101	80	94	75	99	70	99	74	94	77	84	73		
19...	93	73	92	75	91	74	87	67	97	73	89	71	91	72	93	73	92	77	94	74	94	73	91	78	86	74		
20...	93	71	97	74	92	70	89	63	93	71	90	67	89	72	93	75	92	72	94	65	94	69	90	72	84	71		
21...	87	70	86	73	92	68	91	65	92	71	94	68	91	69	93	74	94	70	96	71	94	69	81	73	79	73		
22...	83	71	85	72	87	69	85	68	89	71	90	72	88	66	91	75	89	69	94	71	92	69	84	75	87	74		
23...	90	74	88	73	83	70	84	70	78	72	88	69	83	72	80	72	84	73	91	68	85	69	90	76	89	74		
24...	89	70	88	68	89	68	87	70	89	66	90	72	87	67	90	75	90	71	96	74	91	69	88	77	88	76		
25...	90	72	91	70	90	64	89	63	90	69	91	70	88	67	93	77	90	67	96	69	92	66	89	74	87	75		
26...	92	72	96	70	93	63	90	59	93	66	93	69	91	65	90	76	93	66	97	65	94	65	91	75	88	75		
27...	93	71	96	70	96	64	94	62	96	69	96	66	93	66	91	75	96	68	98	65	97	65	91	73	89	75		
28...	93	72	93	73	95	65	96	69	97	69	98	73	93	67	97	75	98	72	98	68	99	65	88	72	88	74		
29...	93	68	95	70	97	67	97	67	98	65	98	75	94	67	94	76	97	72	100	68	98	65	89	72	87	75		
30...	93	70	88	73	93	70	93	68	98	68	93	71	92	69	98	74	94	72	98	70	99	66	83	74	79	71		
31...	91	71	89	72	86	70	88	68	94	68	92	68	91	70	89	73	91	70	96	70	93	65	86	71	85	73		
Mns	91.6	71.5	92.7	72.4	89.7	70.1	89.0	68.6	92.0	70.5	90.2	71.3	88.4	69.8	90.1	75.1	91.0	72.1	94.6	71.2	92.3	69.7	89.6	73.6	87.1	73.8		

Date.	Florida.												Mississippi.											
	Jacksonville.		Jupiter.		Key West.		Miami.		Orlando.		Pensacola.		Tallahassee.##		Tampa.		Columbus.##		Hattiesburg.##		Jackson.		Meridian.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	90	77	88	77	.....	.....	91	78	93	73	82	72	88	73	93	69	92	72	90	69	90	70	87	69
2.....	91	75	90	75	.....	.....	91	77	93	72	84	80	90	72	93	73	95	72	92	70	90	73	88	72
3.....	88	75	85	74	.....	.....	84	75	87	74	87	78	90	73	91	76	90	71	91	72	90	73	86	73
4.....	87	75	85	74	.....	.....	81	74	86	74	88	76	90	70	85	74	92	72	95	71	92	75	90	71
5.....	88	75	86	75	.....	.....	89	74	90	73	87	76	90	70	89	73	95	72	94	72	95	71	92	71
6.....	89	75	86	75	.....	.....	93	78	90	71	87	74	87	73	91	72	95	74	92	70	95	72	88	70
7.....	87	76	86	79	.....	.....	90	76	88	73	86	74	88	73	91	73	89	70	90	71	89	72	86	70
8.....	87	74	85	76	.....	.....	88	77	85	74	85	74	89	72	86	73	87	70	91	69	88	72	84	70
9.....	85	75	86	76	.....	.....	90	74	86	74	78	73	84	73	88	73	90	71	91	72	89	73	82	73
10.....	86	76	86	77	.....	.....	90	76	91	74	79	74	80	71	90	74	93	70	90	70	90	71	87	70
11.....	93	73	88	76	.....	.....	93	75	94	74	85	74	88	71	93	74	93	74	92	72	91	73	88	72
12.....	91	72	91	76	.....	.....	94	75	93	73	85	75	88	73	91	76	93	73	95	71	94	73	88	73
13.....	91	74	88	74	.....	.....	92	74	89	74	90	77	86	74	88	76	93	70	98	70	92	71	90	70
14.....	94	75	90	75	.....	.....	95	73	92	73	92	77	93	74	89	76	97	70	101	75	95	73	91	74
15.....	91	75	92	77	.....	.....	92	74	92	76	92	77	91	71	87	77	97	71	103	75	96	74	93	74
16.....	93	75	92	76	.....	.....	95	74	88	75	95	78	93	72	84	74	99	77	101	76	98	75	96	75
17.....	97	79	92	78	.....	.....	92	76	92	77	97	81	96	73	85	75	102	76	101	77	100	77	99	77
18.....	97	78	92	78	.....	.....	90	76	93	80	95	81	95	74	89	82	101	70	105	75	105	72	102	72
19.....	93	71	95	74	.....	.....	96	77	94	80	86	69	88	76	89	73	94	72	104	75	96	77	92	76
20.....	90	75	92	74	.....	.....	89	74	94	75	88	74	92	77	89	72	95	65	99	74	92	71	90	70
21.....	84	73	85	74	.....	.....	92	72	85	73	89	70	88	71	84	72	966							



Climatological Data for August, 1909.  
DISTRICT No. 3, OHIO VALLEY.

FERDINAND J. WALZ, District Editor.

TEMPERATURE.

The temperature was slightly below normal over central and western Kentucky, the northern portion of Tennessee, and in the western portions of Pennsylvania and New York, and somewhat below normal in West Virginia, the southwestern portion of Virginia and in the northern portion of Indiana; elsewhere over the district the temperature averaged somewhat higher than usual for August. The highest average temperatures were over the northern portion of Alabama, the western part of Kentucky, eastern Illinois, the greater portion of Indiana, and in the immediate Ohio Valley as far east as Louisville, Ky.

Over the district, as a whole, there were several warm and several cool periods, the most marked warm periods being about the 8-10th and 24-28th. Except in Ohio and over the Allegheny Mountain section, maximum temperatures of 100° and over, occurred at many stations in the several States. Marked cool periods were the 21st-23d and the last three days of the month. Light frost occurred in Pocahontas County, W. Va., and at Banners Elk, N. C. Also in some of the northern and western counties of Pennsylvania, and in some of the western localities of New York, more or less heavy frost was reported. There was no serious damage done by frost, although it was reported as killing at a few places.

In the period 22-23d, there were quite a few minimum temperatures below 40° in the mountain section, and between 40° and 45° in other parts of the district.

PRECIPITATION.

The rainfall for the month was extremely variable, ranging all the way from less than half an inch to over 10 inches. As a rule, the greater part of the rain occurred during the first half of the month, and in the period 26-29th. The greatest amounts, ranging from 8 to 10.96 inches, occurred in the upper drainage area of the Tennessee River and in a small section of northeastern Ohio. Amounts ranging from 6 to 8 inches occurred in a few places in the central part of Tennessee, the northwestern part of Georgia, the western part of North Carolina, the upper reaches of the Youghiogheny in Pennsylvania and Maryland, and on the headwaters of the Wabash in Indiana. Over the greater portions of Illinois, western Kentucky, western Tennessee, northern Alabama, and the watersheds of the Allegheny in Pennsylvania and the Ohio and Great Kanawha in West Virginia, the monthly amounts were less than 2 inches. The deficiency was most marked in Illinois, southwestern Indiana, and the western drainage areas of the Tennessee and Cumberland rivers, where the monthly amounts were generally below an inch, and at many places less than 0.3 inch. The deficiency extended up the Ohio Valley as far as

Louisville. Over the rest of the district, other than the sections named, the amounts varied between 2 and 4.5 inches.

The rainfall was heaviest and most general in the period 12-17th, especially the 14-16th, when there were a great many heavy showers and some excessive twenty-four-hour rainfalls. The latter were mostly in Ohio, Kentucky, West Virginia, central Tennessee, and northern Indiana. Over Tennessee, North Carolina, the western portion of Virginia, and the States bordering the Ohio River, except Pennsylvania, by far the greater part of the rain occurred during the first 16 or 17 days of the month, while in the western portions of New York, Pennsylvania, and Maryland, there was little or no rain until the 14th. In the period from the 18th to 25th, inclusive, there was very little rain in any part of the district.

In Tennessee, the dryness was pronounced after the 18th. In Illinois, everything was badly burned, there being only an average of 3 or 4 rainy days, while there were about 23 clear days. Similar conditions existed over the southwestern portion of Indiana. In western Pennsylvania the deficiency was marked, but frequent showers in the middle and last parts of the month kept the surface soil comparatively moist, and the effects of the droughty conditions which lasted over from July were not particularly severe. The most notable effect of the small amount of rain was evidenced in the low stages of rivers and wells.

There were a number of locally excessive rainfalls, most of which occurred on the 15th and 16th. The greater number of these were in Ohio, over the watershed of the Muskingum. The following heavy twenty-four-hour amounts were reported from that locality: Bangorville, 3.59 inches; Granville, 3.78; Gratiot, 4.29; Killbuck, 2.88; McConnellsville, 3.60; Milfordton, 5.33; and Philo, 4.93. Other excessive amounts in Ohio were 2.85 inches at Marietta; 3.18, at Marion; and 3.32 at Sydney. The following additional notable twenty-four-hour rainfalls were reported: Tennessee watershed: 2.93 inches, at Asheville, and 3.28, at Bryson City, 4.00, at Springdale, and 4.50, at Tazewell. On the Wabash watershed: 4.03 inches, on the 12th, at Lafayette, and 3.15, the 27th, at Kokomo. In Kentucky: at Farmers, on the Licking watershed, 3.14 inches, on the 13th; Maysville, on the Ohio, 2.63, on the 15th; and Shelby City, on the Kentucky watershed, 2.90 inches on the 1st. At Parkersburg, 3.60 inches occurred on the 14-15th, which was the heaviest ever recorded at that station.

Considerable damage was done in Ohio by the heavy rains and also by lightning. Scattered, severe local thunderstorms occurred also in the middle of the month in Indiana, Illinois, and Kentucky, resulting in loss from both lightning and heavy rains. Several hailstorms of minor importance passed over some of the north-central counties of West Virginia on the afternoon of the 20th. In the main, however, comparatively little damage was done by storms in the district during the month.

TABLE 1.—Climatological data for August, 1909. District No. 3, Ohio Valley.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, of inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
New York.																					
Allegany.	Cattaraugus.	1,441	3	65.8		95	8	35	22	45	2.48		1.02	0.0	7	17	9	5	nw.	Charles E. Whitney.	
Bolivar.	Allegany.	1,800	13	65.4	+ 0.4	96	8	31	22	50	2.06	- 1.39	1.06	0.0	3	8	13	10	nw.	Lowell Andrus.	
Franklinville.	Cattaraugus.	1,598	12	65.0	- 0.6	91	8	35	22	49	3.63	- 0.41	1.92	0.0	6	17	5	9	w.	John W. Kales.	
Jamestown.	Chautauqua.	1,365	19																		
Olean.	Cattaraugus.										3.03		1.16	0.0	8	22	5	4	w.	John W. Alles.	
Maryland.																					
Deer Park.	Garrett.	2,457	15			89	7	33	22	51	4.65	+ 1.18	0.93	0.0	10					S. P. Specht.	
Grantsville.	do.	2,351	15	65.4	- 1.2	87	8	39	22	35	6.67	+ 2.81	4.19	0.0	10	13	14	4		J. S. Miller.	
Oakland.	do.	2,461	9	64.9		89	8	36	22	43	4.97	+ 1.31	1.02	0.0	13	14	11	6	w.	R. E. Weber.	
Pennsylvania.																					
Aleppo.	Greene.	1,135	8	70.4	+ 0.2	91	9	40	22	41	2.87	- 0.51	1.44	0.0	8	21	5	5	sw.	J. S. Hinerman.	
Baldwin.	Butler.	1,404	3	67.8		91	7	40	11	46	1.87		1.07	0.0	6	19	6	5	w.	S. H. Templeton.	
California.	Washington.	770	6																	Prof. E. H. Knabenshue.	
Claysville.	do.	1,127	5	70.6		94	8	39	22	47	2.17		1.54	0.0	7	16	12	3	w.	E. T. Buchanan.	
Derry Station.	Westmoreland.	1,172	12	70.4	- 0.7	97	8	40	22	43	3.21	- 0.75	0.86	0.0	9	19	9	3	w.	D. M. Wineman.	
Franklin.	Venango.	955	35	67.9	- 0.8	95	7	40	11	47	2.58	- 1.07	2.08	0.0	5	16	12	3	e.	Venango Water Co.	
Freepoint.	Armstrong.	772	31			91	9	45	22	33	1.98	- 1.00	0.67	0.0	8					Mrs. A. R. Burtner.	
Greensburg.	Westmoreland.	1,100	1	70.2		95	25	35	22	47	2.39		0.91	0.0	6	14	12	5	nw.	M. W. Crownover.	
Greenville.	Mercer.	1,950	13	68.0	+ 1.8	91	9	39	22	45	1.72	- 2.17	0.47	0.0	9	23	4	4	nw.	A. M. Orr.	
Grove City.	do.	1,250	2	68.2		91	9	39	22	45	1.72		0.47	0.0	7	17	10	4	nw.	H. W. Harmon.	
Indiana.	do.	1,350	12	70.2	+ 1.0	93	7	44	22	39	1.95	- 2.42	0.94	0.0	7	18	9	4	n.	Rev. J. M. Welch.	
Irwin.	Westmoreland.	884	12	71.1	- 0.3	93	7	43	22	39	3.48	- 0.46	1.23	0.0	6	20	7	4		J. B. Gallagher.	
Johnstown.	Cambria.	1,184	21	70.4	+ 0.8	96	8	46	22	39	3.50	- 1.07	1.82	0.0	8	13	16	2	s.	E. C. Lorentz.	
Lycippus.	Westmoreland.	1,420	17	70.6	- 0.4	92	8	47	22	33	3.50	- 0.53	1.05	0.0	10					Murray Forbes.	
Pittsburg.	Allegheny.	842	39	72.4	- 0.1	91	7	52	20	28	3.33	+ 0.15	1.38	0.0	9	16	10	5	n.	U. S. Weather Bureau.	
Saegertown.	Crawford.	1,116	18	67.4	+ 0.3	91	8	36	22	42	2.82	- 1.37	1.17	0.0	11	11	13	7	nw.	J. G. Apple.	
St. Marys.	Elk.	1,740	11	67.2	+ 0.6	91	8	36	22	46	0.38	- 3.23	0.16	0.0	5	16	11	4		Wm. E. Wittman.	
Skidmore.	Lawrence.	1,000	5	70.4	+ 2.0	94	7	40	22	44	1.20	- 2.56	0.45	0.0	4	25	4	2	sw.	W. H. Stoner.	
Somerset.	Somerset.	2,250	53	67.8	+ 0.9	95	8	40	22	42	5.22	+ 0.50	1.85	0.0	9	11	14	6	sw.	W. M. Schrock.	
Uniontown.	Fayette.	999	21	71.4	- 0.2	92	9	46	22	32	5.70	+ 1.32	1.77	0.0	13	4	15	12	se.	Wm. Hunt.	
Warren.	Warren.	1,137	20	66.6	- 0.6	90	8	37	22	37	3.32	- 0.61	1.26	0.0	6	22	0	9	se.	Anna Simpson.	
West Virginia.																					
Aborvale.	Pocahontas.		1	65.4		86	25	38	22	40	1.97		1.10	0.0	9	17	7	7	nw.	W. E. Arbogast.	
Bancroft.	Putnam.		5	73.8		95	7	51	30	37	2.33		1.33	0.0	8	17	2	12	nw.	James Hill.	
Beeley.	Raleigh.	2,440	10	70.0	- 0.1	91	28	45	22	39	2.53	- 0.18	1.31	0.0	4	17	10	4	w.	John A. Ewart.	
Ben's Run.	Pleasants.	622	6	73.2		93	8	49	22	33	4.47		2.45	0.0	6	24	7	0		J. D. Riggs.	
Bluefield.	Mercer.	2,563	12	70.0	- 1.5	89	28	50	22	32	5.70	+ 0.79	2.00	0.0	11	21	6	4		Agent, N. & W. Ry. Co.	
Buckhannon.	Upshur.	1,472	13	69.4	- 1.2	89	8	45	22	34	4.90	+ 1.37	1.70	0.0	9	18	8	5		H. A. Darnall.	
Cairo.	Ritchie.	667	7	72.6		94	9	48	22	36	4.87		2.50	0.0	9	9	19	3	sw.	Van A. Zevely.	
Central Station.	Doddridge.	900	9	69.0	- 3.0	91	8	42	22	40	4.84	+ 1.87	2.34	0.0	11	11	15	5	sw.	G. W. Sherwood.	
Charleston.	Kanawha.	598	6	75.4		92	9	53	22	31	3.66	- 0.60	1.75	0.0	5	23	4	4	w.	R. C. Hewes.	
Creston.	Wirt.	612	7	73.2		93	27	50	22	37	2.81		1.13	0.0	10	13	11	7	w.	J. M. Reed.	
Cuba.	Jackson.	544	7	71.4		91	8	46	22	38	3.74	+ 0.93	1.42	0.0	10	13	17	1	w.	C. T. Perry.	
Doane.	Wayne.		4																	G. W. Jude.	
Elkhorn.	McDowell.	1,933	14	69.6	- 1.7	88	9	47	22	34	2.22	- 1.40	0.74	0.0	5	18	11	2	sw.	J. J. Lincoln.	
Elkins.	Randolph.	1,940	10	68.8	+ 0.4	88	8	47	23	35	3.20	- 0.45	1.40	0.0	13	14	8	9	n.	U. S. Weather Bureau.	
Fairmont.	Marion.	879	4	72.4		96	8	42	30	42	2.18	- 1.15	0.50	0.0	10					H. Glenn Fleming.	
Glenville.	Gilmer.	738	14	73.5	+ 0.5	94	8	50	22	35	4.60	+ 0.84	1.07	0.0	7	13	5	13	sw.	John Holt.	
Grafton.	Taylor.	985	16	71.6	+ 0.2	92	7	48	22	38	3.18	- 0.46	1.31	0.0	16	16	8	7		S. W. Wilson.	
Green Sulphur Springs.	Summers.	1,600	12								3.34	- 0.40	0.98	0.0	9					M. Gwinn.	
Hinton.	do.	1,400	13																	R. R. Flanagan.	
Huntington.	Cabell.	510	12	75.5	+ 0.8	96	28	51	22	33	1.26	- 2.41	0.46	0.0	8	16	3	12	w.	L. H. Hutchinson.	
Lewisburg.	Greenbrier.	2,200	8	69.2	- 1.3	91	9	43	23	39	1.93	- 1.57	1.15	0.0	5	14	12	5	e.	Geo. T. Argabrite.	
Logan.	Logan.	665	7	74.9		96	27	52	22	37	1.66		0.70	0.0	9	6	25	0	w.	H. C. Ragland.	
Lost Creek.	Harrison.	1,033	11	70.9	+ 0.1	92	8	44	22	44	4.03	+ 0.13	1.64	0.0	8	20	8	3	w.	Allen Smith.	
Madison.	Boone.	704	4	73.9		95	27	53	22	35	1.23		0.47	0.0	5	17	13	1		S. E. Bradley.	
Mannington.	Marion.	967	6	71.0		92	8	43	22	46	3.00		1.27	0.0	10	16	9	6	w.	Jas. A. Morgan.	
Morgantown.	Monongalia.	1,250	13	71.7	- 0.7	92	14	46	22	35	2.52	- 0.61	0.65	0.0	7	18	11	2	s.	Horace Atwood.	
Marlington.	Pocahontas.	2,169	10	65.2	- 3.4	81	27	44	23	29				0.0		21	7	3		N. C. McNeil.	
Moundsville.	Marshall.	640	6	73.0		94	27	45	22	39	3.14		1.82	0.0	10	23	5	3	sw.	J. E. Matthews.	
New Cumberland.	Hancock.	987	9	69.7	- 1.0	91	8	40	22	44	1.92	- 1.54	0.80	0.0	5	18	4	9	s.	Frank S. Evans.	
New Martinsville.	Wetzel.	634	14	73.5	- 0.6	95	8	49	22	39	3.83	+ 1.12	2.36	0.0	7	26	2	3	s.	Wm. Ankron.	
Nuttallburg.	Fayette.	2,252	12	69.2	- 1.7	91	8	42	17	42	2.99	- 0.23	0.72	0.0	9	16	9	6		Stephen Tully.	
Parkersburg.	Wood.	638	21	73.0	- 0.3	93	8	52	21	31	4.37	+ 0.84	3.60	0.0	11	12	13	6	n.	U. S. Weather Bureau.	
Parsons.	Tucker.	1,662	7	68.3	- 1.2	89	8	45	22	38	5.10	+ 1.91	1.50	0.0	10	15	14	2		J. W. Swisher.	
Philippi.	Barbour.	1,192	10	70.2	- 1.8	90	7	46	23	38	4.44	+ 0.83	1.69	0.0	16	13	16	2	w.	J. D. Dadisman.	
Pickens.	Randolph.	2,785	16	63.8	- 1.3	83	28	44	30	32	5.79	+ 1.02	1.39	0.0	9	19	6	6	w.	Dr. J. L. Cunningham.	
Pineville.	Wyoming.		1																	E. M. Senter.	
Point Pleasant.	Mason.	553	14	72.8	- 2.1	94	8	48	21	40	1.20	- 2.13	0.32	0.0	8	9	5	17	sw.	E. H. Armstrong.	
Powellton.	Fayette.	904	13	73.6	+ 0.8	95	28	50	22	37	1.47	- 2.51	0.61	0.0	7	7	11	13	n.	D. Swain.	



Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.					Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		Prevailing wind direction.
<i>Ohio—Cont'd.</i>																				
Cincinnati	Hamilton	628	39	76.1	+ 0.6	95	28	57	22	27	1.82	- 1.51	0.88	0.0	8	16	11	4	w.	U. S. Weather Bureau.
Circleville	Pickaway	694	15	74.2	+ 0.7	93	8	50	22	32	2.17	- 0.10	0.57	0.0	9	16	10	5	n.	Samuel W. Courtright.
Clarington	Monroe	600	7	72.4	.....	94	9	46	22	36	3.24	+ 0.23	1.62	0.0	14	13	12	6	sw.	Col. S. Tachapatt.
Clarksville	Clinton	1,010	23	74.4	+ 1.2	92	25	50	21	38	3.66	+ 0.04	1.43	0.0	9	24	3	4	w.	E. T. M. Williams.
Columbus (1)	Franklin	918	32	73.4	+ 0.4	93	8	52	31	29	2.53	- 0.69	1.91	0.0	11	16	9	6	e.	U. S. Weather Bureau.
Columbus (2)	do.	757	27	72.2	+ 1.1	92	8	46	22	36	2.43	- 0.54	1.57	0.0	6	16	10	5	sw.	Ohio State University.
Columbus (3)	do.	1	1	73.4	.....	90	8	51	22	27	.....	.....	.....	0.0	11	17	3	ne.	Capt. Paul Mason.	
Columbus Reservoir	do.	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.31	.....	2.51	0.0	7	12	7	12	n.	Superintendent.
Coshocton	Coshocton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. Ada Jeffries.
Dayton (1)	Montgomery	790	27	74.4	+ 1.0	95	28	47	22	36	3.41	+ 0.34	0.97	0.0	7	19	10	2	sw.	Edith E. L. Boyer.
Dayton (2)	do.	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. D. D. Rist.
Delaware	Delaware	927	13	71.6	- 0.5	92	25	42	22	40	3.90	+ 0.22	1.39	0.0	8	18	6	7	sw.	L. L. Hudson.
Demos	Belmont	1,325	20	72.8	+ 1.5	95	13	46	22	37	2.59	- 1.08	1.24	0.0	10	21	8	2	nw.	J. F. Dysart.
Frankfort	Ross	750	17	71.9	- 0.5	93	28	46	22	36	2.26	- 1.10	1.35	0.0	4	24	5	2	ne.	O. A. Cory.
Garrettsville	Portage	1,005	25	67.9	- 1.0	90	8	35	22	45	2.75	- 0.59	0.93	0.0	13	20	6	5	nw.	S. M. Luther.
Granville	Licking	960	25	72.2	+ 1.1	93	9	44	22	40	6.13	+ 3.32	3.78	0.0	7	25	0	6	e.	Dr. L. E. Davis.
Gratiot	do.	1,000	19	69.6	- 1.2	88	25	48	23	32	5.95	+ 2.77	4.29	0.0	7	20	9	2	nw.	W. B. Longstreth.
Green	Adams	500	17	74.8	+ 0.8	94	8	35	22	35	4.24	+ 0.67	1.70	0.0	7	18	10	0	sw.	W. F. Kenyon.
Green Hill	Columbiana	1,135	18	67.8	- 1.1	92	28	49	22	44	1.93	- 1.56	0.71	0.0	12	18	13	0	sw.	Jos. E. Bentley.
Greenville	Darke	1,060	24	73.6	+ 3.1	90	28	49	22	37	2.23	- 0.95	0.90	0.0	8	16	9	6	s.	G. A. Katzenberger.
Hillsboro	Highland	.....	2	72.6	.....	90	28	49	22	35	4.30	.....	1.86	0.0	6	11	16	3	sw.	Carey H. Roush.
Ironton	Lawrence	575	27	75.5	+ 2.3	96	9	49	22	36	3.45	+ 0.65	1.07	0.0	7	21	8	2	sw.	James Bull.
Jacksonburg	Butler	975	22	74.5	- 0.8	94	8	50	22	35	4.60	+ 1.49	1.84	0.0	10	21	7	3	sw.	Dr. J. B. Owsley.
Kenton	Hardin	.....	7	72.6	.....	94	2	42	22	43	2.60	.....								

TABLE 1.—Climatological data for August, 1909. District No. 3—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.					Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
Alabama—Cont'd.																					
Riverton	Colbert	360	12	80.1	+ 1.7	103	28	57	21	37	1.66	- 2.13	0.78	0.0	4	18	9	4	ne.	E. R. Nelles.	
Scottsboro*	Jackson	652	26	77.8	+ 0.2	97	28	56	26	35	1.33	- 2.49	0.56	0.0	8	5	20	6	sw.	Miss Irene Caldwell.	
Tuscumbia	Colbert	488	27	80.8	+ 2.0	99	28	61	23	34	0.76	- 2.81	0.46	0.0	3	16	3	12	se.	Samuel Moore.	
Tennessee.																					
Ashwood	Maury	725	31	78.3	+ 0.8	100	28	55	20	37	3.17	- 0.71	1.92	0.0	6	8	16	7	s.	Mrs. J. W. Fleming.	
Benton	Polk	880	23	79.0	+ 2.9	100	29	59	21	34	1.85	- 2.33	0.75	0.0	8	14	16	1	n.	G. L. Williams.	
Byrdstown	Pickett	1,026	15	76.0	+ 0.7	94	28	55	22	30	1.19	- 3.02	0.27	0.0	10	7	24	0	s.	Dr. Jno. C. Chilton.	
Carthage	Smith	500	27	79.0	+ 0.7	100	28	57	22	36	5.44	+ 0.99	1.55	0.0	9	25	5	1	se.	E. C. Pickering.	
Cedar Hill*	Robertson	625	12	78.3	- 0.7	100	27	60	14	36	0.0	0.0	0.0	0.0	0	0	0	0	s.	J. F. Ruffin.	
Chattanooga	Hamilton	808	31	79.0	+ 2.5	95	29	63	23	29	1.19	- 2.56	0.53	0.0	9	12	14	5	ne.	U. S. Weather Bureau.	
Clarksburg	Montgomery	520	43	80.0	+ 3.0	98	13	58	22	32	1.50	- 1.82	0.70	0.0	4	26	5	0	n.	Prof. Jas. A. Lyon.	
Decatur	Melba	850	14	79.0	+ 2.1	100	28	56	23	36	3.54	- 1.38	2.20	0.0	5	20	9	2	nw.	J. W. Lillard.	
Dickson	Dickson	800	13	78.0	+ 0.8	99	28	55	22	35	0.41	- 3.15	0.37	0.0	2	11	20	0	w.	N. R. Sugg.	
Dover	Stewart	102	28	80.4	+ 2.7	102	28	52	22	40	1.49	- 2.05	1.15	0.0	2	23	8	0	s.	A. M. Tippet.	
Dunlap*	Sequatchee	726	15	78.2	+ 1.8	98	28	57	23	37	4.89	- 1.80	0.0	0.0	8	23	8	0	.....	S. B. Boyd.	
Elizabethton	Carter	1,575	20	76.4	+ 1.8	95	27	51	23	36	2.80	- 1.66	0.80	0.0	9	20	11	0	w.	Lee F. Miller.	
Erasmus	Cumberland	1,850	13	73.0	+ 1.0	93	27	49	21	40	3.80	- 1.22	1.38	0.0	7	15	16	0	se.	Mrs. E. D. Ashley.	
Florence	Rutherford	560	28	77.6	+ 1.0	95	28	59	22	27	5.27	+ 1.70	1.76	0.0	7	19	12	0	w.	Erastus P. Bell.	
Franklin	Williamson	655	18	79.0	+ 2.3	96	28	57	22	32	0.48	- 3.05	0.42	0.0	3	16	8	7	.....	J. L. Parkes, jr.	
Harriman	Roane	841	14	77.8	+ 1.3	95	13	57	22	32	2.29	- 1.70	0.96	0.0	8	10	20	1	.....	Robert R. Ayres.	
Hohenwald	Lewis	983	24	79.0	+ 3.5	100	27	57	20	39	0.56	- 3.33	0.45	0.0	3	10	21	0	se.	John Lutzelman.	
Iron City	Lawrence	1,212	12	78.2	+ 0.3	100	15	55	23	39	2.00	- 2.18	0.90	0.0	3	7	24	0	nw.	Capt. H. P. Seavy.	
Johnsonville	Humphreys	364	14	79.6	+ 1.0	102	28	55	22	36	0.89	- 2.53	0.86	0.0	3	23	7	1	nw.	Miss Sallie B. Mathews.	
Jonesboro	Washington	1,740	13	75.2	+ 1.6	92	13	50	24	35	2.33	- 2.42	1.18	0.0	4	22	9	0	w.	James H. Epps, jr.	
Knoxville	Knox	977	39	76.8	+ 2.1	92	28	60	24	27	3.17	- 0.83	1.92	0.0	7	16	16	5	ne.	U. S. Weather Bureau.	
Lebanon*	Wilson	522	16	79.6	+ 2.0	100	13	61	6	35	1.40	- 4.18	0.90	0.0	3	19	11	4	n.	Logan Fields.	
Lewisburg	Marshall	725	16	78.7	+ 1.4	95	27	53	22	42	0.57	- 4.18	0.33	0.0	5	19	11	1	ne.	Dr. R. D. Crutcher.	
Lynchville	Giles	1,011	26	77.4	+ 0.9	95	28	56	22	32	4.11	- 0.05	2.17	0.0	6	20	11	0	n.	Col. J. H. Burrow.	
McMinnville	Warren	1,050	15	77.9	+ 1.6	98	28	57	22	31	4.22	+ 0.09	1.50	0.0	8	19	11	1	e.	J. T. Sparkman.	
Maryville	Blount	2,486	13	69.7	+ 0.9	91	27	38	23	46	2.57	- 3.44	0.74	0.0	8	20	10	1	.....	Mrs. E. E. Benedict.	
Mountain City	Johnson	1,280	19	74.4	+ 1.8	96	15	61	22	28	2.73	- 0.74	1.22	0.0	4	19	11	1	.....	U. S. Weather Bureau.	
Nashville	Davidson	770	16	80.0	+ 2.5	99	27	55	22	39	0.82	- 2.83	0.30	0.0	4	21	8	2	sw.	Dr. C. T. Burnett.	
Newport	Coke	770	16	78.8	+ 0.9	100	27	52	22	40	0.0	0.0	0.0	0.0	2	22	4	5	s.	Mrs. Rosa Woods.	
Pinewood	Hickman	3	13	79.5	+ 1.1	101	28	55	22	41	1.10	- 2.07	0.60	0.0	2	30	1	0	s.	Miss Carrie Cash.	
Pope	Perry	1,150	25	74.9	+ 1.1	93	28	53	23	33	4.48	+ 0.30	2.56	0.0	11	18	10	3	e.	Miss Bessie Howard.	
Rogersville	Hawkins	1,410	22	73.4	+ 0.3	94	28	51	22	38	2.36	- 1.97	0.95	0.0	5	11	14	6	nw.	Fred Beal.	
Rugby	Morgan	442	26	75.5	+ 1.1	94	27	53	28	41	4.26	- 0.44	1.14	0.0	10	5	16	10	sw.	S. G. Wilson.	
Savannah	Hardin	4	15	75.5	+ 1.1	90	27	57	21	26	3.84	- 0.44	1.14	0.0	7	12	1	18	sw.	W. F. Bell.	
Sevierville	Sevier	2,000	15	75.5	+ 1.1	94	27	57	21	26	3.84	- 0.44	1.14	0.0	7	12	1	18	sw.	H. O. Eckel.	
Sewanee	Franklin	920	4	76.9	+ 0.9	94	28	56	22	30	9.51	- 4.50	0.0	0.0	9	14	9	8	w.	University of South.	
Sparta	White	1,058	7	78.2	+ 3.3	100	27	51	22	39	4.72	+ 0.15	4.00	0.0	6	19	8	4	w.	E. H. Hull.	
Springdale	Claborn	377	7	78.8	+ 1.2	100	28	51	22	40	0.03	- 2.42	0.03	0.0	1	29	1	1	n.	Mrs. Lucy E. Breeding.	
Springville	Henry	1,075	21	78.1	+ 2.8	98	28	56	23	36	3.81	- 0.27	1.80	0.0	8	14	17	0	s.	H. A. Boden.	
Tellico Plains	Monroe	753	23	78.8	+ 1.9	99	28	54	22	38	2.41	- 1.73	1.80	0.0	5	14	17	0	n.	R. T. Moore.	
Tullahoma	Coffee	1,075	21	78.1	+ 2.8	98	28	56	23	36	3.81	- 0.27	1.80	0.0	8	14	17	0	s.	H. C. Boyd.	
Waynesboro	Wayne	753	23	78.8	+ 1.9	99	28	54	22	38	2.41	- 1.73	1.80	0.0	5	14	17	0	n.	W. R. Wilson.	
Widerville	Henderson	1,075	21	78.1	+ 2.8	98	28	56	23	36	3.81	- 0.27	1.80	0.0	8	14	17	0	s.	W. P. Watson.	
Yukon	Lincoln	850	14	78.4	+ 0.6	98	28	58	22	30	6.17	+ 2.40	1.96	0.0	7	10	21	0	w.	W. W. Hicks.	
Kentucky.																					
Alpha	Clinton	15	76.0	- 0.9	96	12	51	22	33	2.00	- 2.59	0.70	0.0	6	18	8	5	w.	C. E. Barrett.		
Anchorage	Jefferson	700	8	75.8	+ 1.4	98	28	51	21	37	2.32	- 1.53	0.0	5	12	16	3	nw.	G. M. Talbott.		
Bardonia	Nelson	637	13	79.0	+ 1.4	102	28	55	22	36	1.35	- 2.17	0.0	5	23	3	5	ne.	T. W. Cann.		
Beattyville	Lee	650	6	75.3	+ 0.9	98	28	50	22	37	5.88	- 1.84	0.0	6	11	2	18	w.	G. W. Woodward.		
Beaverdam	Ohio	441	6	78.3	+ 0.9	102	27	52	22	41	1.52	- 0.90	0.0	3	26	0	5	s.	C. F. Rumold.		
Berea	Madison	1,070	8	75.2	+ 2.5	97	27	50	22	35	4.90	- 2.30	0.0	11	20	9	2	nw.	Mrs. L. G. Causey.		
Bowling Green	Warren	500	20	80.3	+ 2.5	101	20	55	22	38	2.02	- 1.44	1.24	0.0	4	19	8	4	n.	John S. Lawrence.	
Burnside	Plank	589	19	78.4	+ 0.9	102	27	55	22	39	0.21	- 1.00	0.0	3	24	7	0	.....	G. M. Estes.		
Cadia	Trigg	7	80.4	+ 1.4	104	28	55	22	35	1.85	- 1.09	0.0	5	19	12	0	s.	W. A. Taylor.			
Calhoun	McLean	397	6	80.4	+ 1.4	104	28	55	22	35	1.85	- 1.09	0.0	5	19	12	0	s.	Chas. N. Bruns.		
Catlettsburg	Boyd	544	16	77.4	+ 1.4	97	28	50	22	41	2.10	- 1.50	1.14	0.0	10	26	2	3	nw.	J. B. Atkinson.	
Earlington	Hopkins	370	20	77.2	+ 2.3	103	28	54	22	40	1.17	- 2.40	0.54	0.0	5	14	16	1	s.	Miss Lee Ray.	
Edmonton	Metcalfe	600	18	77.2	+ 2.3	98	27	54	22	40	1.17	- 2.40	0.54	0.0	5	14	16	1	s.	W. H. Henderson.	
Eubank	Plank	1,177	15	74.7	+ 0.7	95	28	56	23	32	4.72	+ 0.84	1.24	0.0	11	21	6	4	ne.	J. V. Oldham.	
Falmouth	Pendleton	530	20	73.9	+ 1.1	94	28	54	22	30	1.51	- 1.92	0.79	0.0	7	16	6	9	nw.	Miss Gertrude Sorrell.	
Farmers	Rowan	668	4	73.9	+ 1.1	94	28	54	22												



TABLE 1.—Climatological data for August, 1909. District No. 3—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, of inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		Prevailing wind direction.
Indiana—Cont'd.																				
Cambridge City.....	Wayne.....	941	10	72.2	+ 0.0	93	8†	44	22	40	4.49	+ 1.44	1.58	0.0	9	23	0	8	n.	Charles Lemberger.
Columbus.....	Bartholomew.....	632	18	75.8	+ 2.6	99	28	46	22	43	1.31	- 2.23	0.44	0.0	7	26	1	4	sw.	John A. Perry.
Connersville.....	Fayette.....	769	20	74.2	+ 2.4	94	8†	46	22	43	1.39	- 1.51	0.37	0.0	7	21	9	1	ne.	C. C. Hibbs.
Delphi.....	Carroll.....	668	16	73.6	+ 1.9	94	8†	46	21	41	4.93	+ 1.83	1.60	0.0	10	22	2	7	.....	R. L. Higginbotham & Son
Eminence.....	Morgan.....	782		74.2		94	15	45	21	35	2.67		1.41	0.0	5	26	5	0	sw.	Dr. E. E. Kelso.
Evansville.....	Vanderburg.....	386	10	80.2	+ 3.2	99	28	58	30	28	0.41	- 2.83	0.23	0.0	5	19	12	0	ne.	U. S. Weather Bureau
Farmersburg.....	Sullivan.....			76.8		95	12†	50	23	37	1.52		1.26	0.0	2	24	5	2	e.	Maurice Yeager.
Farmland.....	Randolph.....	1,101	20	73.6	+ 2.4	89	8†	50	21	30	3.19	- 0.53	1.17	0.0	8	19	3	9	e.	W. J. Davisson.
Greenfield.....	Hancock.....	905		74.2		91	28	50	21	31	3.22		1.45	0.0	5	2	28	1	w.	W. C. Goble.
Greensburg.....	Decatur.....	954	5	76.0	+ 1.1	95	25†	51	30	34	1.80	- 0.18	0.90	0.0	4	26	4	1	ne.	Charles H. Ewing.
Heltonville.....	Lawrence.....			76.2*		99*	28	43*	22	45*	2.17		1.09	0.0	5				e.	E. L. Palmer.
Huntingburg.....	Dubois.....			77.0		100	27	45*	31	42*	2.22		0.74	0.0	5				e.	H. Dufendach.
Huntington.....	Huntington.....	741	11	73.9	+ 0.2	94	25	50	22	34	4.21	+ 1.03	1.80	0.0	8	20	5	6	nw.	Charles McGrew.
Indianapolis.....	Marion.....	822	33	74.9	+ 1.3	93	28	53	21	27	2.80	- 0.53	1.20	0.0	9	14	12	5	ne.	U. S. Weather Bureau.
Jeffersonville.....	Clark.....	455	12	77.8	+ 1.6	99	28	53	22	33	1.17	- 2.20	0.68	0.0	5	21	8	2	ne.	John C. Loomis.
Judyville.....	Warren.....			74.0		93	2†	44	21	35	4.26		2.07	0.0	7	24	0	7	s.	D. R. Warrick.
Kokomo.....	Howard.....	840	11	72.2	- 0.9	89	8†	47	21†	33	6.75	+ 3.83	3.15	0.0	7	14	11	6	s.	John W. Doty.
Lafayette.....	Tippecanoe.....	617	22	75.0	+ 2.3	93	8†	51	21†	31	6.77	+ 3.61	4.03	0.0	9	22	2	7	so.	W. J. Jones, Jr.
Logansport.....	Cass.....	620	17	75.4	+ 2.7	97	8†	48	21	38	4.11	+ 1.74	1.60	0.0	8	21	3	7	e.	Charles Massena.
Madison.....	Jefferson.....	460	11	77.6	+ 1.3	98	28	51	21	39	2.02	- 1.38	0.94	0.0	6	17	13	1	e.	J. Cooperider.
Marengo.....	Crawford.....	363	19	75.0	- 0.1	95	27†	43	31	43	1.72	- 2.43	1.10	0.0	5	20	10	1	sw.	J. M. Johnson.
Marion.....	Grant.....	814	14	73.4	+ 1.1	93	28	48	21	35	3.37	+ 0.52	1.13	0.0	10	23	4	4	n.	James F. Hood.
Markle.....	Huntington.....	814	10	71.8*	+ 0.3	94	27	44†	22	40†	1.50	- 1.43	0.50	0.0	5	15	11	5	nw.	I. S. Shideler.
Mauzy.....	Rush.....	980	21	73.4	+ 2.8	94	28	45	21†	43	2.12	- 0.67	0.93	0.0	5	18	7	6	e.	E. Kirkwood.
Moore Hill.....	Dearborn.....			74.9		94	8†	49	22	39	1.73		0.73	0.0	9	28	2	1	e.	W. S. Bigney.
Mount Vernon.....	Posey.....	410	15	79.6*	+ 2.6	103*	28	53*	23	37	0.14	- 3.32	0.14	0.0	1	30	1	0	n.	C. M. Spencer.
Paoli.....	Orange.....	611	5	75.8	- 0.8	97	28	46	21	45	2.52	- 1.49	0.97	0.0	6	19	12	0	ne.	James A. Gillum.
Princeton.....	Gibson.....	481	19	78.5	+ 3.4	102	28	53	22†	38	1.65	- 0.99	1.20	0.0	2	31	0	0	ne.	Elisha Jones.
Richmond.....	Wayne.....	972	17	72.0	+ 1.0	91	8†	47	21†	39	4.27	+ 0.04	1.34	0.0	8	17	13	1	.....	Walter Vossler.
Rochester.....	Fulton.....	775		73.7		89	8†	52	21†	25	2.67		1.12	0.0	7	18	8	5	.....	J. P. Keith.
Rockville.....	Pulke.....	722	15	75.1	+ 2.0	92	14†	53	20	27	3.33	+ 0.83	0.80	0.0	8	16	10	5	s.	Dr. W. N. Wirt.
Rome.....	Perry.....	370		79.0		104	27	53	22	41	0.88		0.48	0.0	5	26	5	0	w.	Adam Ansbach.
Salamonia.....	Jay.....			72.0		92	8	46	21†	38	5.36		1.54	0.0	8	15	5	10	se.	C. V. Skinner.
Salem.....	Washington.....	717	11	75.4	+ 0.8	98	28	47	22	42	1.18	- 2.32	0.40	0.0	5	20	11	0	w.	E. S. Allen.
Scottsburg.....	Scott.....	570	10	77.7	+ 1.3	96	28	53	22†	36	1.56	- 1.34	0.49	0.0	6	17	14	0	nw.	F. H. Park.
Seymour.....	Jackson.....	610	14	77.0	+ 2.4	98	28	49	23	42	1.56	- 1.44	0.85	0.0	7	14	17	0	sw.	J. R. Blair.
Shelbyville.....	Shelby.....			74.3		94	28	48	21	35	3.90		1.53	0.0	10	11	20	0	e.	B. F. Crouch.
Terre Haute.....	Vigo.....	498	11	78.4	+ 2.1	95	12†	53	21	35	1.58	- 1.28	1.30	0.0	4	21	9	1	ne.	R. G. Gillum.
Veedsburg.....	Fountain.....	612		75.0		96	16†	43	21	42	2.42		0.96	0.0	5	25	4	2	e.	L. A. Culver.
Vevay.....	Switzerland.....	525	19	77.2	+ 1.6	95	28	53	22	28	2.05	- 1.40	0.90	0.0	6	9	20	2	sw.	Miss Frederica Boerner.
Vincennes.....	Knox.....	431	10	74.6	- 2.6	104	28	53	21†	41	0.70	- 2.21	0.30	0.0	3	23	5	3	e.	G. V. List.
Washington.....	Daviess.....	484	7	77.6	+ 0.6	96	28	54	21	31	1.11	- 2.40	0.55	0.0	5	27	2	2	e.	H. B. Turrell.
Whitestown.....	Boone.....			72.9	+ 1.5	90	8†	49	21†	30	4.39	+ 1.20	2.14	0.0	5	14	17	0	nw.	C. A. Stevenson.
Winona Lake.....	Kosciusko.....			74.5		96	27	48	21	39	1.67		1.04	0.0	6				.....	Rev. A. A. Young.
Worthington.....	Greene.....	526	20	76.4	+ 3.1	95	28	49	21	35	2.67	- 0.66	1.10	0.0	4	15	16	0	.....	C. A. Geckler.
Illinois.																				
Albion.....	Edwards.....	531	17	79.2	+ 2.4	101	28	55	30	32	1.01	- 2.26	0.69	0.0	3	25	6	0	s.	B. F. Michels.
Calro.....	Alexander.....	359	33																.....	U. S. Weather Bureau.
Charleston.....	Coles.....	720	18	76.6	+ 2.2	96	12†	48	21	38	1.12	- 1.75	1.11	0.0	2	18	12	1	ne.	Jacob B. Dazey.
Equality.....	Gallatin.....	421	9	82.0	+ 3.4	105	28	54	21†	41	0.46	- 3.01	0.38	0.0	2	25	6	0	n.	Dr. L. W. Gordon.
Fairfield.....	Wayne.....	405	18	79.2	+ 3.1	102	28	49	23	45	1.05	- 2.05	0.65	0.0	4	25	4	2	ne.	George A. Tromly.
Flora.....	Clay.....	495	23	79.1	+ 4.3	102	28	48	23	43	0.09	- 3.35	0.09	0.0	1	29	2	0	se.	Jos. S. Peak.
Golconda.....	Pope.....	500	30	81.3	+ 3.5	104	28	55	22	40	0.08	- 3.00	0.04	0.0	2	17	14	0	sw.	Dr. D. Lawrence.
Hoopeston.....	Vermillion.....	715	7	73.8		90	28	48	21	29	5.28		2.60	0.0	7	25	5	1	.....	S. F. Hoskinson.
McLeansboro.....	Hamilton.....	462	26	79.2	+ 3.4	99	28	50	23	40	0.31	- 3.14	0.20	0.0	2	23	6	2	s.	C. C. Judd.
Martinsville.....	Clark.....	630	20	78.4	+ 3.5	100	12	50	21	45	1.03	- 2.10	0.75	0.0	2	21	7	3	s.	G. M. Daugherty.
New Burnside.....	Johnson.....	556	14	79.3	+ 0.9	101	28	52	22	38	0.15	- 2.41	0.15	0.0	1	26	2	3	s.	George Harris.
Olney.....	Richland.....	486	19	79.6	+ 2.9	101	28	52	23†	45	0.81	- 1.88	0.46	0.0	3	15	14	2	sw.	Victor E. Phillips.
Palestine.....	Crawford.....	500	26	79.0	+ 4.7	100	28	51	21	36	0.73	- 2.88	0.40	0.0	2	20	11	0	ne.	Alexander Charley.
Paris.....	Edgar.....	600	12	76.0	+ 0.6	95	14†	48	21	37	1.18	- 1.35	0.78	0.0	4	22	9	0	ne.	H. W. Twyman.
Philo.....	Champaign.....	700	24	75.2	+ 2.4	96	12†	47	21	38	2.88	+ 0.03	2.66	0.0	3	25	5	1	se.	H. A. Burr.
Rantoul.....	do.....	768	18	76.3	+ 2.4	97	12†	48	21	37	1.81	- 1.46	1.04	0.0	6	25	5	1	sw.	Wm. Breiner.
Robinson.....	Crawford.....	500	9	78.6	+ 3.2	100	28	51	21	42	0.80	- 2.98	0.42	0.0	3	28	2	1	e.	A. P. Woodworth.
Sumner.....	Lawrence.....	459		76.8		98	28	45	23	42	0.47		0.37	0.0	2	30	1	0	nw.	O. A. Fyffe.
Tuscola.....	Douglas.....	644	10																.....	E. W. Lester.
Urbana.....	Champaign.....	725	7	75.4		94	14	50	21†	32	2.37		2.33	0.0	4	10	21	0	ne.	Prof. J. G. Mosier.

\* Precipitation included in that of the next measurement.

• Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.

† Also on other dates.

‡ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

|| Estimated by observer.

|| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

\*, †, ‡, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—Daily precipitation for August, 1909. District No. 3, Ohio Valley.

Stations.	River basins.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
New York.																																	
Allegany	Allegheny									T.						.38	.23	.31	.03		.18							1.02		.33		2.48	
Bolivar	do.						T.									.52												1.06		T.	.48	2.06	
Franklinville	do.									T.						.02	.92	.04	T.		.07	T.						1.37		T.	.21	3.63	
Jamestown	do.																																
Olean	do.																.32	1.16	.04		.04	.01						1.04	.02	.40		3.03	
Maryland.																																	
Deer Park	Youghiogheny	.21					.24									.57	.71	.60	.23	.49	.24								.40			4.65	
Grantsville	do.	.33										.09				.55	.19	.04		1.00									.37	.10		6.67	
Oakland	do.	.34					.51					.12				.27	.97	1.02	.24	.06	.18	.06						.03	.32	.85		4.97	
Pennsylvania.																																	
Aleppo	Ohio					.22						.22				1.44		T.	.15	T.	.10							.17	.05	.52		2.87	
Baldwin	Allegheny															.05	1.07		.15	.14	.14							.32				1.87	
Beaver Dam	Ohio				.10					T.		.01				.42	.07	.01		.01	.17							.32				1.11	
California	Monongahela																																
Clarion	Allegheny																												.02	.01	T.		0.12
Claysville	Ohio				.36	.02						.02				1.54		.10			.01							.12		.01		2.17	
Confluence	Youghiogheny	.06				1.90	T.					T.	T.			.46	1.50	.50	.10	T.	1.38						T.	.10	.30	T.		6.30	
Davis Island Dam	Ohio									.01		.01	T.			.95	.06	.08	.06	T.	.19	.30						.18	T.	.03		1.87	
Derry Station	Allegheny											.08				.69	.86	.18	.38	.07	.14							.41		.40		3.21	
Franklin	do.															2.08	.15	T.										.05	.18	.12		2.58	
Freeport	do.											.09				.67	.38	.30	.19		.04	.10						.21	T.			1.98	
Greensboro	Monongahela	.02	T.			.28						T.	.02			.66	.24	.10		.01	.60							.10	.12	.20	.06	2.41	
Greensburg	Youghiogheny															.91	.61	.11	.03	T.	.32							.41	T.	T.		2.39	
Greenville	Ohio	.03		.04								T.			.10	.29	.09	T.			.12							.47	.05	.20		1.39	
Grove City	do.								.42						.47		.08		T.	.03	.10							.29		.33		1.72	
Harris Island Dam	Allegheny	T.	T.			T.	T.			T.		.02	T.			1.24	.07	.29	.02	T.	.40	.38						.40	T.	.08	T.	2.90	
Indiana	do.											T.				.94	.28	.05	.04		.04							.45		.15		1.95	
Irwin	Monongahela				.50											1.23	.36	.37			.63	T.								.39		3.48	
Johnstown	Allegheny	T.										.06				1.82	.52	.11		.04	.09							.34		.52		3.50	
Lock No. 4	Monongahela					T.	.98					.02				2.35	.33	.52	.03	T.	1.03							.20		.05	.02	5.53	
Lyeippus	Allegheny					T.	.02					.04				.75	1.05	.21	.22	.03	.42							.35		T.	.41	3.50	
Parkers Landing	do.															.62	.16	.24			.10	.04						.48	T.	.18		1.82	
Pittsburg	Ohio	T.				T.				T.		.01			.96	.47	.50	.07	.01		.86							.42		T.	.03	3.33	
Saegertown	Allegheny		.13	.13								.03			.37	.06	1.17		.05		.03							.60		.05	.18	2.82	
St. Marys	do.											T.			.10		.05	T.		.06								.16		T.	.01	T.	0.38
Saltsburg	do.											.06	.04			.50	.42	.26	.40	.14	T.	.12						.22	.24	.18	T.		6.42
Skidmore	Ohio											T.			.35						.25							.45		.15		1.20	
Somerset	Youghiogheny											.10			.21	.91	1.85	.20	T.	.65	.66							.31		.33		5.22	
Springdale	Allegheny					.04						.04				.82	.74	.16			.03	.07						.22	.02			2.14	
Uniontown	Monongahela	.03				.03	.06					.07				1.77	.96	.27		T.	1.13	.03						.13		.64	.58	5.70	
Warren	Allegheny				.50											1.26	.06				.04							.52		.88		3.32	
West Newton	Youghiogheny	T.				.26				T.		.01	T.			4.50	.58	.32	.01	T.	1.40							.20	.06	.40	.02	7.76	
West Virginia.																																	
Arboreale	Great Kanawha	.25			.01		T.	T.				.03				T.	1.10	.07	.15	.01		.22							T.	.13		1.97	
Bancroft	do.		.20												.05	1.33	.25	.32	.05										.07		.06	2.33	
Beckley	do.			.28			.17									.77	1.31															2.53	
Ben's Run	Ohio	.02														2.45	.80		.04		.18									.98		4.47	
Bluefield	Great Kanawha	1.20	.02	.07			.37			.06					.21	.78	.00	.26	.71	.02												3.24	
Brandonsville	Monongahela	.12				.12									.02		.22	.41	.10	.02	.03	1.00							.17		.91	12	4.90
Buckhannon	do.	.13			.05	.05									T.	1.70	.50	.76			.84									.12	T.	.75	4.90
Cairo	Little Kanawha	.10			.85	.05						.05				2.50		.20	.05	T.	.55									.05	.52		4.87
Central Station	Middle Island Creek	.07			.44	.09			T.			.04				.02	.34	.10	.01	T.	.72	.17							T.	.84		4.84	
Charleston	Great Kanawha	.22														1.75		1.05	.54													3.66	
Creston	Little Kanawha	.12	.09			.62				T.						1.13	.34	.10	T.		T.	.10							T.	.02	.03	.06	2.81
Cuba	Sand Creek	.14			T.					.34		.02	.48	.05	1.42	.15		.08										.03		T.	1.03		3.74
Davis	Monongahela	.45														1.10	1.00	.40		.20												5.43	
Doane	Big Sandy																																
Elizabeth	Little Kanawha																																
Elkhorn	Big Sandy	.37		T.									.32	.41	.38		.74															2.22	
Elkins	Monongahela	.11			.45	.01						.01				.07	1.39	.42	.09	.03	.33							.01		.06	.22		3.20
Fairmont	Monongahela	.10			.18	.20										.40		.25	.10		.17	.18							.10	.50		2.18	
Glenville	Little Kanawha	T.	T.		.85											.80	.79	.64		1.07									.13		.30		4.60
Grafton	Monongahela	.18	.01		.16	.28		.01				.02				1.31	.22	.08	.13	.01	.22	.14							.02	.36		.03	3.18
Green Sulphur Springs	Great Kanawha																																
Hinton	do.	.46	.18	.72	.10					.20						.12	.98	.32	.26														



TABLE 2.—Daily precipitation for August, 1909. District No. 3—Continued.

Stations.	River basins.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Ohio—Cont'd.																																	
Bladensburg.....	Muskingum.....					.52									1.30	1.80	.92	T.									.05	.60	.39	T.		5.58	
Calais.....	Ohio.....					.78							.08		.01	1.24	.20	T.	.08	T.	.13						.18		.20	.03		2.93	
California.....	do.....																																
Cambridge.....	Muskingum.....					T.										1.72	.37												.50	.25		2.84	
Camp Dennison.....	Miami.....	.06				.24							.09	.35	.02	2.38	.35											.10		.02	.09	3.70	
Canal Dover.....	Muskingum.....					.02							.04			2.40	.12	T.		.02								.37		.36	T.	3.33	
Canton.....	do.....					.52	.04						.08			.67	.34	.04			.06	.10						.43			.40	2.68	
Cardington.....	Scioto.....																																
Chillicothe.....	do.....																																
Cincinnati.....	Ohio.....	.02			.88	T.							.04	.22	.20	.29										T.	.07	T.	T.	.10		1.82	
Circleville.....	Scioto.....	.07					.57						.05	.08		.21	.38	T.											.11	.52	.15	2.12	
Clarington.....	Ohio.....	.03				.70	.05						.05		T.	1.50	.12	.07	.05	.02	.40	.03						.19	.02	T.	.04	3.27	
Clarksville.....	Miami.....	.23				.18							.06	1.13	.05	1.35	.08											.27		.31		3.66	
Columbus (1).....	Scioto.....					.02				.09			.15		.23	1.69	.14	T.							.05	.04	.09	.02	.01			2.53	
Columbus (2).....	do.....					.05							.13		.20	1.57	.13											T.		.35		2.43	
Columbus Reservr. (3).....	do.....					.35							.23			1.03	1.48	.10								.12						3.31	
Coshocton.....	Muskingum.....																																
Dayton (1).....	Miami.....												.03	.02	.96	.96	.97											.24		.23		3.41	
Dayton (2).....	do.....																																
Delaware.....	Scioto.....					.98				.17			.02		.25	1.14	.09																3.90
Demos.....	Ohio.....	T.				.11							.05		.43	1.24	.38	T.	.14		.09					T.	1.01		.24			2.59	
Frankfort.....	Scioto.....					.34							.40	T.	1.35													.06		.08	.01	2.26	
Garrettsville.....	Mahoning.....		.02			.27							.05		.19	.18	.18	.03	.27	.02	.23					T.	.93		.03	.35		2.75	
Granville.....	Muskingum.....	T.				.77	.60						T.	T.	3.78	.28	T.											.12	.13	.45		6.13	
Gratiot.....	do.....					.40							.01		4.29	.32												.05	.80	.08		5.95	
Green.....	Ohio.....	.88				.09	T.			.12			.84	T.	1.70						.05								.56			4.24	
Greenhill.....	Muskingum.....					.31				.26			.02		.01	.68	.01	.04	.07	.01	.07							.28	.15	T.		1.93	
Greenville.....	Miami.....									.03			.01	.91	.04	.16	.36											.54	.15			2.23	
Hillsboro.....	Scioto.....					.94							T.	.97	.25	1.86	T.													.02	.26	4.30	
Ironton.....	Ohio.....	.06											.70	.12	.52	1.07					.53											3.45	
Jacksonburg.....	Miami.....					.08							.10	.33	.82	1.42	.42											1.08	.32	.03		4.60	
Kenton.....	Scioto.....	.05	.01										.04	.01	.39	1.63											.07	.40				2.60	
Killbuck.....	Muskingum.....					.05				.22					1.51	1.37	.31												.65	.74		4.85	
Lancaster.....	Scioto.....	.02				2.00				T.			.31		.07	1.80	.34		T.									.15	.15	.07		4.91	
Lawsville.....	Ohio.....	.84	.03			.19	.32						1.30		.20	1.64	.37											.03	.02	.39		5.33	
McConnelsville.....	Muskingum.....					.04							.02		.20	.60				T.								.01	.31	.10		4.28	
Marietta.....	Ohio.....	.05				.06							.03		1.42	.85	.03											.02	.01	.66		3.85	
Marion.....	Scioto.....		.05		T.	.52				T.			.06		.24	1.96	1.42										.40	.70	.60			5.95	
Milfordton.....	Muskingum.....					1.28				T.					.05	.45	.84										.67		.46			8.78	
Milligan.....	do.....					.83							T.		.07	2.40	.04											.02	.18			3.54	
Millport.....	Ohio.....					.55				.21			.51		1.01	.77	.21	.02	.05		.05							.25	.10	.05		3.78	
Nellie.....	Muskingum.....														.18	1.33	.70											.25				2.46	
New Alexandria.....	Ohio.....					1.00				T.			T.			T.	1.68	.32	T.		.40							.63	T.	T.		4.03	
New Berlin.....	Muskingum.....					1.45				T.			.08		.10	.74	.03				.19							.65	.26	.17		3.67	
New Richmond.....	Ohio.....	.27				.01	.40						T.	.22	T.	.93	.90											.10		.31		3.14	
New Waterford.....	do.....					T.				.01			T.		T.													.75				0.76	
North Lewisburg.....	Scioto.....																																
Orangeville.....	Mahoning.....					.24							.02		.07	1.03	.04											.15	.87	.04		2.47	
Pataskala.....	Scioto.....	.01				.11				T.			T.		.163	.20	.42		T.		.23							.10	.25	.07		4.54	
Philo (1).....	Muskingum.....	T.				.10							T.		T.	3.23	1.70				.06						.09	.30	.05			5.63	
Philo (2).....	do.....					.25							T.	.57	.05	1.38												.23	.68			3.16	
Plattsburg.....	Miami.....																																
Pomeroy.....	Ohio.....																																
Portsmouth.....	do.....	.31	.32	.05			.45			T.			1.10	.99	.22	.69					.30		.30	.07					1.20	.36	.20		4.59
Rittman.....	Muskingum.....					.56							T.		.05	1.65	.35	T.	T.		.09								.37	.46	T.		5.37
Shenandoah.....	do.....					.11				.13			T.	.08	.43	.33	.25	T.											.66				5.00
Sidney.....	Miami.....									.47			.03	.08	.24	.40	.01												.13	.07	.48	T.	4.63
Somerset.....	Muskingum.....					1.10	.14						T.	.02	.24	.40	.01												.35	1.00	.03		

TABLE 2.—Daily precipitation for August, 1909. District No. 3—Continued.

Stations.	River basins.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Alabama—Cont'd.																																	
Madison.....	Tennessee.	1.25			.50		.75			T.	T.		T.		T.		.05																2.55
Riverton.....	do.		.62	.78					.20				T.	.06																	T.		1.06
Scottsboro.....	Tennessee.	.15	.09	.06	.08		.10																						.05				1.33
Tuscumbia.....	do.													.44	.02					.30													0.76
Tennessee.																																	
Ashwood.....	Tennessee.		.50	1.92			.20		.20			T.			.30		T.		T.												.05	3.17	
Benton.....	do.	.75	T.	.25			.10	.10								.08	.10	.18												.29		1.85	
Bird's Bridge	do.	.04	.34			.20										.07		.22	.58												1.50	4.95	
Bluff City	do.	.74	.54		T.	.65				.22							.52	.18														2.85	
Byrdstown.....	Cumberland.	.27	.24	T.	.05		.13			.08	.04		.20	.06	.04	.08													T.	T.		1.19	
Carthage	do.	.79	T.	.07	.02		.80	T.	.03	1.08						1.09	.01															5.44	
Center Point.....	Tennessee.						.91	.10							1.55		1.09															1.01	
Cedar Hill.....	Cumberland.																																
Celina	do.	T.				T.		.50			T.				.88		.36															1.74	
Charleston	Tennessee.	.05	1.02	.40			.06			.15							T.	.35	.45												.10	2.58	
Chattanooga.....	do.	.32	.51	.02	T.		.04	T.					.06		.02	.19	.01													T.	.02	1.19	
Clarksville.....	Cumberland.	.70				.20										.10	.50															1.50	
Clinton	Tennessee.	.25	.05	.10	.20	.35		T.	.12		.15		.08	.55	T.	1.25	2.10														.05	5.25	
Dandridge	do.		.04	.06	.14										.02	2.10	.04															2.40	
Decatur.....	do.	2.20								.15			.14			.39														.66		3.54	
Dickson.....	Cumberland.			.37															.04													0.41	
Dover.....	do.			T.	1.15														.34													1.49	
Dunlap.....	Tennessee.	1.34			.10	.29		.08					.22	1.80		.54														.52		4.89	
Elizabethton	do.	.80		.10	.60			.05		.06						.67	.25											.12			.15	2.80	
Erasmus.....	Cumberland.	1.38	T.	.42	.39	T.	T.	T.					.20		.21	.36																3.80	
Florence.....	do.	.58	.03	T.	1.56		1.76								.60	.37	.37															5.27	
Franklin.....	do.	.03	T.	.03	.42											T.	T.	T.														0.48	
Hall's Hill	do.					T.									.70	.74																1.44	
Harriman.....	Tennessee.	.03	.28		.08								.32	.96	.24	.34	.04															2.29	
Hohenwald.....	do.									.45	.01						.10																0.56
Iron City.....	do.		T.		T.	.45					.65					.90																	2.00
Johnsonville.....	do.	.01		.86			.02																										0.89
Jonesboro.....	do.	.40									.20					1.18														.55		2.33	
Kingston	do.	.08	.05	.20	.09	T.					.08		.02	.82	T.	.02	.10															1.46	
Knoxville.....	do.		T.	.38	.08		T.			.04			.74	.01	.54	1.38																3.17	
Lebanon.....	Cumberland.	T.				.30							.90	.20	T.																	1.40	
Lewisburg.....	Tennessee.	T.	.16			.33	.03		.01	T.		T.			T.	T.		.04															0.57
Loudon	do.	1.10	.10													.20	T.															1.40	
Lynnville.....	do.					T.	.37				T.	.39	T.			.73																1.49	
McGhee	do.	2.25	.20												.80	.50	.15															3.4	
McMinnville.....	Cumberland.	.70		.27	.32	.11									2.17		.54															4.21	
Maryville.....	Tennessee.	.53		.55	.16	.10	.15						1.50		.01	1.22																4.22	
Mountain City.....	do.	.57	.05			.37	.07									.19	.55	.74														2.57	
Nashville.....	Cumberland.	.19		T.	.32	T.							1.22		T.	1.00																2.73	
Newport.....	Tennessee.				.50								.50		2.50	1.30																4.80	
New River	Cumberland.	.60			1.18	1.01										1.85	.22															4.86	
Palmetto.....	Tennessee.	.30	T.			.30			.20	T.						.02			T.														0.82
Pinewood.....	do.						.60										.50																1.10
Pope.....	do.							.02																									4.48
Rogersville.....	Cumberland.	.32	.06	.06		.02		.02		.36	.06			.66	.12	.56	.24																2.36
Rugby.....	Tennessee.		T.	.44	.90				T.	T.				.03	.04		.95																4.26
Savannah.....	do.	.20		.09		.08	.02		T.	.07	.08					2.64															.07	.08	3.84
Sevierville.....	do.	.71		.41	.50	.20	T.	.10	.03	T.																						9.51	
Sparta.....	Cumberland.	1.95		.12	T.	.05																											4.72
Springdale.....	Tennessee.					.03																											0.03
Springville.....	do.	2.19	.50		.20		.84				.35		.58	.20	1.15	4.00	.95															10.96	
Taswell	do.																																
Tellico Plains.....	do.	.10	.80		T.	.25	1.80	.09	.07						.02	T.	.68																3.81
Tullahoma.....	Cumberland.	.22	1.40	.09	.20	1.01	.20	.10						.41		.40	.05	.30															4.07
Worham	do.																																1.66
Waynesboro.....	Tennessee.			T.	T.	.30	.05	.04					T.	1.80		.22																	2.41
Wildersville.....	do.	.06				.94							.15			.75																	1.90
Yukon.....	do.	1.90			1.15	1.00	.10	.05	T.							1.61	.75		T.													6.17	
Kentucky.																																	
Alpha.....	Cumberland.	T.			T.									.40	.15	.70	.10																



Stations.	River basins.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
<i>Kentucky—Cont'd.</i>																																		
Shelbyville	Salt	1.08					.13							.11	1.30	.41														.33			3.36	
Taylorsville	do	.05								T.		T.	.40		.74	.04					T.							T.		.05			1.28	
Williamsburg	Cumberland	.60	.65	.10	.85				.20					.10	.50	.90	.65					.10											4.65	
Williamstown	Licking	1.34				.20	.04							.32	.86	.35											.07			.25			3.43	
<i>Indiana.</i>																																		
Anderson	West Fork, White								.09				.37	.22	.25	.09	.07									T.	.51	.05	2.12	1.01			4.78	
Bloomington	do	.03	T.		.04							T.	.02	T.	.21	.82											.87	.04	T.	T.			2.03	
Bluffton	Wabash								.15				.05	1.20	.32	.05													.07				1.84	
Butler	Muscatatuck										.11		.42	.55	1.74	.95	.32										.34	T.		.16			4.59	
Cambridge City	Whitewater	.09								.22			.07	1.58	.01	1.23	.81										.46			.22	.02		4.49	
Columbus	East Fork, White	.44											.08	.05	.06	.14										.32							1.31	
Connersville	Whitewater	T.											.06	.31	.02	.36	.02									T.	.37		.25	T.			1.39	
Delphi	Wabash	.70		T.	.01	.04				T.			1.60	.21	.55	T.	.42										.79	T.	.59	.02			4.93	
Eminence	West Fork, White			T.									.40	.35	.21												1.41	.30	T.				2.67	
Evansville	Ohio			.11	T.					.04			T.			T.	.23										.02			.01			0.41	
Farmersburg	Wabash													.53	.67	.06	.05	1.17									1.26		T.				1.52	
Farmstead	West Fork, White												1.45	T.	T.	.51	.16										.39		.27	.05			3.19	
Greenfield	East Fork, White				T.	T.																					.85		.25				3.22	
Holtsville	do	.01								T.	T.		T.	.12		.90												.71		.07			1.80	
Huntingburg	Patoka																																	

TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 3, Ohio Valley.

Date.	Pennsylvania.				West Virginia.												Ohio.											
	Greenville.		Pittsburg.		Charleston.		Elkhorn.		Elkins.		Glennville.		Huntington.}}		Morgantown.		Parkersburg.		Wheeling.}}		Canton.		Cincinnati.		Columbus.		Dayton.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	88	52	84	68	90	68	76	56	76	62	86	67	85	70	78	64	82	68	86	66	85	61	85	66	87	67	89	65
2...	87	57	85	69	89	68	74	58	80	60	88	61	88	67	83	63	84	65	89	64	83	61	86	69	84	68	89	62
3...	84	62	84	69	85	65	73	62	77	58	88	58	86	63	80	63	83	63	87	63	81	63	83	68	83	67	85	63
4...	84	49	82	64	86	62	81	59	81	51	89	56	87	60	82	59	83	59	85	55	80	56	82	68	85	65	86	63
5...	87	55	84	62	85	68	83	59	81	55	85	59	89	65	81	60	82	62	87	60	81	61	88	69	86	67	91	66
6...	89	52	84	63	87	64	85	59	85	56	90	60	89	64	86	58	86	62	83	63	83	58	86	66	85	63	89	61
7...	92	53	91	67	88	66	86	60	86	57	92	66	95	64	85	62	89	66	88	61	87	59	89	68	88	63	94	59
8...	92	55	90	67	90	68	86	60	88	60	94	67	94	65	90	66	93	66	92	62	87	62	92	69	93	68	94	63
9...	90	56	89	71	92	68	88	60	86	59	93	64	93	68	90	66	91	67	93	65	88	64	92	70	90	72	94	64
10...	81	55	81	64	90	72	83	62	82	57	89	68	89	73	82	66	83	67	87	66	80	60	86	70	83	62	89	72
11...	77	44	79	57	87	62	84	54	81	51	87	55	88	58	83	53	81	58	86	53	76	54	83	63	80	57	84	56
12...	78	59	77	64	86	64	83	59	73	59	78	62	85	60	79	63	73	64	81	56	77	58	86	67	73	62	87	65
13...	82	57	83	66	89	68	74	61	85	61	88	62	82	66	89	64	83	66	89	61	84	59	85	73	82	66	84	67
14...	86	61	85	69	82	69	81	62	83	65	86	67	89	71	92	68	83	69	89	61	84	64	90	72	86	70	86	69
15...	81	67	76	68	86	78	86	66	75	67	81	68	90	71	77	74	79	71	81	70	79	69	87	72	78	68	90	72
16...	89	67	78	67	87	70	83	66	82	63	88	70	90	69	83	70	87	68	86	70	84	68	90	71	86	66	90	65
17...	79	58	77	63	85	66	83	62	75	60	81	65	83	66	82	61	77	65	78	63	75	63	83	65	78	63	83	60
18...	78	63	75	63	80	65	77	57	70	61	78	63	81	63	74	61	75	64	78	61	74	62	79	63	74	61	79	58
19...	82	54	76	62	82	65	78	55	77	58	84	60	85	64	81	59	82	63	85	64	78	60	84	63	82	63	86	58
20...	78	57	73	58	85	64	80	54	82	55	86	56	87	58	80	55	84	57	82	56	73	59	84	66	78	61	82	63
21...	73	43	72	55	77	59	78	56	73	52	79	55	79	54	72	59	75	52	78	52	71	52	76	59	75	56	80	51
22...	68	35	78	52	81	53	77	47	79	48	80	50	83	51	81	46	79	53	80	48	75	42	80	57	80	53	83	47
23...	88	41	82	54	83	58	81	47	82	47	86	51	88	55	84	51	84	53	85	52	80	47	85	58	85	57	86	50
24...	91	48	86	58	86	58	81	51	85	50	89	54	90	57	87	55	88	59	89	52	84	54	89	62	88	62	90	57
25...	95	56	87	67	87	64	85	54	86	53	90	57	92	59	88	58	89	63	90	56	87	62	93	66	90	66	94	60
26...	87	69	84	68	89	66	84	57	82	57	89	62	91	62	84	66	88	69	87	63	84	68	87	70	88	71	92	68
27...	88	69	86	66	90	67	88	61	87	61	93	62	92	68	88	65	91	68	88	68	86	64	91	72	91	70	90	69
28...	81	58	81	69	92	70	88	60	86	63	85	60	96	71	82	64	84	69	80	65	78	66	95	70	90	68	95	65
29...	77	59	77	63	86	70	87	54	77	56	83	66	82	70	78	62	78	64	82	66	73	64	83	67	78	62	84	68
30...	75	42	75	53	86	55	80	49	77	48	83	50	81	57	76	48	76	55	78	52	71	50	78	60	75	57	79	53
31...	81	42	79	61	84	59	81	59	81	53	85	54	86	57	81	59	82	57	82	51	75	49	84	59	81	52	83	48
Mean	83.5	54.4	81.3	72.3	85.6	65.1	81.7	57.6	80.6	56.9	86.2	60.8	87.6	63.4	82.5	60.9	83.0	63.0	84.9	60.2	80.1	59.3	85.7	66.4	83.3	63.6	87.3	61.5

Date.	Ohio.				Virginia.				North Carolina.				Tennessee.												Kentucky.			
	Marion.		Waverly.		Big Stone Gap.		Wytheville.		Asheville, N. C.		Decatur, Ala.}}		Chattanooga.		Jonesboro.		Knoxville.		Nashville.		Palmotto.		Sparta.		Waynesboro.		Beattyville, Ky.}}	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	94	62	87	67	82	68	80	64	83	65	89	70	84	72	87	66	82	72	88	74	88	73	84	71	91	71	82	67
2...	94	60	88	64	79	68	66	62	72	63	89	72	84	70	85	64	85	72	88	70	88	69	88	71	88	68	87	67
3...	91	62	86	62	79	62	64	58	71	62	89	70	81	70	80	63	84	68	88	70	89	70	87	66	88	69	88	62
4...	87	58	87	61	81	61	78	58	81	61	89	70	83	72	84	61	82	68	89	70	90	70	88	66	90	72	88	64
5...	90	62	88	69	83	66	83	60	82	65	90	70	88	69	87	65	87	69	91	68	92	66	88	66	93	65	91	64
6...	90	60	88	59	84	64	83	60	85	62	90	68	87	70	86	63	88	68	87	69	91	68	89	70	85	68	91	61
7...	94	58	89	61	84	62	85	61	79	64	83	68	85	69	88	62	85	69	88	64	87	64	89	65	87	65	92	62
8...	94	60	94	65	84	63	85	63	82	61	87	71	84	68	90	61	89	66	90	68	89	66	89	65	88	67	95	65
9...	90	64	94	64	86	64	85	62	83	62	90	70	89	67	89	63	87	70	91	70	91	66	88	66	91	66	94	65
10...	87	65	88	67	85	65	82	63	85	63	90	70	92	70	89	62	88	69	94	71	91	67	89	67	92	66	91	67
11...	85	52	85	56	83	64	81	55	84	67	94	71	92	71	87	65	88	70	93	72	95	70	90	67	94	69	89	59
12...	79	61	82	60	83	63	78	58	86	67	93	74	90	73	87	63	90	67	96	70	95	71	91	66	94	69	86	59
13...	92	69	81	64	77	64	79	62	85	66	93	70	92	72	86	64	88	68	94	71	94	72	92	70	92	70	83	63
14...	85	62	90	64	85	65	76	62	84	65	92	73	93	71	84	62	89	68	94	72	95	71	90	70	92	70	91	68
15...	86	67	81	69	88	70	77	67	85	67	97	75	93	74	92	67	92	72	96	77	98	77	92	72	96	71	94	68
16...	88	65	92	68	81	69	81	62	81	66	93	75	91	75	85	64	86											



TABLE 3.—Maximum and minimum temperature at selected stations, August, 1909. District No. 3—Continued.

Date.	Kentucky.														Indiana.														Philo. Ill.
	Bowling Green. H		Earlington.H		Greensburg.H		Lexington.		Louisville.		Maysville.H		Williamsburg. H		Butterville.		Evansville.		Indianapolis.		Kokomo.		Rockville.		Worthington.				
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
1...	89	69	82	.....	85	70	76	67	82	68	86	.....	88	70	88	67	83	72	86	63	86	58	85	62	85	62	88	61	
2...	94	67	93	.....	88	64	82	67	87	69	90	.....	90	71	88	64	89	70	88	66	87	60	88	65	89	65	92	63	
3...	92	67	94	.....	87	65	81	65	86	70	88	.....	85	67	86	67	88	70	84	68	85	64	86	68	87	67	90	68	
4...	93	68	95	.....	79	65	84	67	88	72	90	.....	83	67	88	68	89	71	84	70	84	68	84	69	86	70	90	70	
5...	94	67	95	.....	91	64	87	63	92	71	92	.....	90	65	90	66	92	72	88	70	86	67	87	68	89	66	89	65	
6...	89	67	90	.....	89	65	85	63	89	70	89	.....	89	65	89	65	89	72	85	67	86	61	86	66	86	65	86	64	
7...	96	64	94	.....	91	64	87	68	91	69	93	.....	90	66	91	65	91	69	87	65	87	58	87	66	88	65	88	64	
8...	96	67	92	.....	92	65	90	70	92	71	96	.....	89	60	95	64	92	74	91	69	89	61	90	68	91	66	93	63	
9...	97	69	94	.....	91	65	89	70	93	73	93	.....	91	68	92	66	93	73	90	71	88	68	90	69	91	69	95	64	
10...	97	70	96	.....	90	65	86	71	92	77	89	.....	87	68	92	72	94	76	87	70	85	67	85	70	90	75	85	70	
11...	98	70	95	.....	89	66	82	62	88	68	87	.....	90	67	90	62	91	72	84	63	83	57	86	66	88	67	90	63	
12...	98	65	98	.....	92	59	85	66	93	70	89	.....	90	63	88	66	95	74	88	67	86	65	89	70	92	70	96	68	
13...	97	71	98	.....	95	61	82	70	89	73	89	.....	86	66	86	70	93	76	82	72	82	69	85	72	88	72	92	71	
14...	96	68	98	.....	93	66	87	69	94	71	92	.....	88	69	88	71	93	74	89	71	85	68	92	71	93	72	96	70	
15...	98	71	99	.....	94	68	89	71	94	74	89	.....	89	70	90	71	95	78	89	70	88	74	90	74	90	77	95	71	
16...	96	73	92	.....	90	72	87	69	94	71	90	.....	90	71	90	66	94	72	89	67	85	62	87	67	90	69	92	65	
17...	91	68	92	.....	84	66	80	63	85	68	86	.....	85	67	83	60	84	71	77	62	76	59	79	62	85	60	82	58	
18...	89	67	89	.....	84	60	78	61	81	68	82	.....	84	64	80	60	84	70	79	62	78	58	80	62	85	64	85	61	
19...	93	61	92	.....	84	56	81	61	85	65	89	.....	83	60	87	58	87	67	84	59	83	58	85	60	86	59	90	55	
20...	94	61	94	.....	88	58	83	63	90	64	90	.....	90	60	85	63	90	68	79	59	77	59	79	65	86	64	81	60	
21...	90	58	88	.....	80	55	74	56	80	58	81	.....	82	61	80	53	82	59	77	53	78	47	78	51	81	49	80	47	
22...	92	55	92	.....	88	48	79	55	83	58	86	.....	90	55	84	52	84	60	80	56	79	47	79	56	83	53	85	52	
23...	95	57	95	.....	90	52	85	60	90	61	91	.....	86	57	90	54	88	60	84	60	83	50	85	56	87	52	86	49	
24...	98	60	97	.....	92	55	86	65	92	66	94	.....	90	58	90	63	90	69	88	65	86	56	89	64	90	58	93	55	
25...	99	64	97	.....	95	59	89	66	98	70	95	.....	92	60	96	68	95	76	86	68	84	59	83	68	91	65	88	65	
26...	101	67	100	.....	95	63	87	70	93	73	92	.....	95	62	91	68	96	73	87	69	86	66	86	67	88	69	88	66	
27...	101	70	100	.....	97	67	90	71	95	75	96	.....	93	66	93	70	97	76	91	65	89	67	90	73	92	75	92	72	
28...	101	70	103	.....	99	67	92	71	99	75	99	.....	92	67	95	71	99	76	93	69	88	66	92	69	95	69	93	65	
29...	90	70	85	.....	82	67	80	64	85	66	87	.....	85	66	88	67	84	67	79	60	77	59	78	60	91	62	76	55	
30...	93	57	90	.....	84	51	75	57	81	61	82	.....	89	60	82	57	85	58	77	56	77	50	78	53	82	56	80	49	
31...	96	60	92	.....	91	50	81	59	88	61	76	.....	84	63	88	52	89	63	83	56	81	52	83	57	86	55	86	51	
Mns	94.9	65.7	93.9	.....	89.3	61.9	83.8	65.2	89.3	68.6	89.3	.....	88.2	64.5	88.5	64.1	90.2	70.3	85.0	64.8	83.7	60.6	85.2	65.0	88.1	64.7	88.5	61.9	

Climatological Data for August, 1909.  
DISTRICT No. 4, LAKE REGION.

Prof. HENRY J. COX, District Editor.

TEMPERATURE.

The mean temperature during the month as a whole was above the normal over the greater portion of the district. It was below the normal from Cleveland, Ohio, eastward, with the exception of the New York shore of western Lake Ontario. In that portion of the district lying along the Wisconsin shore of Lake Michigan, the eastern portion of the Upper Peninsula of Michigan, and the northern and western portions of the Lower Peninsula, the excess of temperature was greatest. The following show the greatest departures from the normal mean temperatures in this region: Cassopolis, Mich.,  $+8.0^{\circ}$ ; West Branch, Mich.,  $+7.9^{\circ}$ ; Harbor Beach, Owen, and Onaway, Mich.,  $+6.2^{\circ}$ ; Gladwin, Mich.,  $+5.7^{\circ}$ ; Benzonia, and St. Ignace, Mich.,  $+5.6^{\circ}$ ; Webberville, Mich.,  $+5.5^{\circ}$ ; Manistee, and Mount Pleasant, Mich.,  $+5.4^{\circ}$ ; Grayling, Mich.,  $+5.3^{\circ}$ ; Crandon, Wis.,  $+4.7^{\circ}$ ; Fond du Lac, Wis.,  $+4.5^{\circ}$ ; and Green Bay, Wis.,  $+4.4^{\circ}$ .

Over these sections, and as far east as central Ohio, the temperature was generally high throughout the greater portion of the month. The warmest periods of the month over the entire district were from the 2d to the 9th, and from the 23d to the 28th, respectively, the highest temperatures being generally recorded during the latter period. A cool period overspread the entire district from the 28th to the 31st, and the lowest minimum temperatures of the month occurred during this time. At the majority of stations temperatures of  $50^{\circ}$  or lower were recorded. At several stations in New York and Vermont they were lower than  $40^{\circ}$ , and at Indian Lake, N. Y., on the morning of the 31st, the temperature fell to  $20^{\circ}$ . Frosts and frost temperatures occurred generally throughout most of the northern counties and highlands of New York and Vermont, and also in the interior of the Upper Peninsula of Michigan, and the northern counties of the Lower Peninsula.

A cool period was also experienced from the 20th to the 22d, when frosts were reported from the same sections.

In the eastern portions of the district, where the mean temperatures were below the normal, low minimum temperatures were frequent throughout the entire period. Temperatures of  $50^{\circ}$  or lower occurred at Angelica, N. Y. on 21 days; at Old Forge, N. Y., on 19 days; and at Northfield, Vt., on 18 days.

PRECIPITATION.

The precipitation was above the normal over southern Wisconsin, Illinois, Indiana, and the western and southern portions of the Lower Peninsula of Michigan, being greatest in the southwestern portion of this region, where the departure was  $+3.32$  inches at Chicago, Ill. The rainfall was also in excess of the normal amount over the western Lake Superior region, but elsewhere there was a deficiency of precipitation, amounting to more than an inch in nearly all localities.

The rainfall was well distributed throughout the month over all sections except New York, where the first fourteen days were unusually dry, and many portions of the St. Lawrence watershed experienced a drought which approached in severity that of 1908. The period of greatest rainfall extended from the 8th over the western portion of the district, to the 21st in the Lake Champlain region, although, except in a few instances, the falls were not excessive. Twenty-four-hour falls of 3 inches or more occurred at only four stations: Chicago, Ill., 3.52 inches; Highland, Mich., 3.30 inches; Upper Sandusky, Ohio, 4.85 inches; and Defiance, Ohio, 4.00 inches—all on the 15th.

In general, over the eastern portions of the district, there was a greater number of clear days, with more sunshine than is usual, while over the western portions about normal conditions in this respect prevailed.



TABLE 1.—Climatological data for August, 1909. District No. 4, Lake Region.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.	Prevailing wind direction.
Minnesota.																				
Duluth.....	St. Louis.....	1,133	38	64.6	- 0.3	84	15	41	31	24	4.91	+ 1.38	2.82	0.0	10	10	9	12	ne.	U. S. Weather Bureau.
Floodwood.....	do.....	1,257	5	65.4 <sup>a</sup>	.....	89 <sup>d</sup>	27	39 <sup>a</sup>	20	39 <sup>d</sup>	5.53	.....	1.55	0.0	11	20	3	5	nw.	M. H. Schussler.
Mount Iron.....	do.....	1,510	15	66.4	+ 4.3	88	27	40	20	31	8.13	+ 4.41	1.15	0.0	19	10	5	16	se.	Oliver Iron Mining Co.
Stephens Mine.....	do.....	.....	2	65.2	.....	88	27	38	20	37	7.78	.....	1.57	0.0	15	14	7	10	do.	Do.
Two Harbors.....	Lake.....	692	15	65.2	+ 2.1	86	16	41	31	32	5.60	+ 1.92	1.95	0.0	8	16	7	8	sw.	Geo. W. Watts.
Wisconsin.																				
Appleton.....	Outagamie.....	795	10	71.0	+ 3.6	94	24 <sup>†</sup>	41	21	40	2.24	- 0.25	0.56	0.0	10	16	1	14	se.	J. L. Mead.
Ashland.....	Ashland.....	647	15	68.8	+ 1.9	93	27	45	30	32	4.14	+ 0.99	1.65	0.0	14	19	5	7	de.	Sam Wheeler.
Cecil.....	Shawano.....	804	2	72.9	.....	94	23	46	21 <sup>†</sup>	36	1.69	.....	0.39	0.0	7	13	15	3	sw.	L. W. Schmidt.
Chilton.....	Calumet.....	860	15	70.4	+ 2.5	93	6	48	30	35	5.24	+ 2.59	1.31	0.0	7	14	14	3	sw.	D. V. Jones.
Crandon.....	Forest.....	1,060	12	67.8	+ 4.7	92	24	39	20	32	2.03	- 0.67	0.90	0.0	7	19	12	0	w.	A. L. Emde.
Florence.....	Florence.....	1,293	17	66.2 <sup>b</sup>	+ 2.9	90 <sup>b</sup>	24	40 <sup>b</sup>	30	37	2.92	- 0.43	0.84	0.0	8	17	5	9	nw.	F. S. Evans.
Fond du Lac.....	Fond du Lac.....	800	23	72.0	+ 4.5	97	6 <sup>†</sup>	47	21	42	3.36	- 0.29	1.26	0.0	7	20	2	9	nw.	Geo. W. Marshall.
Grand River Locks.....	Marquette.....	616	1	72.0	.....	94	8	46	20	39	3.21	- 0.96	1.20	0.0	7	25	4	2	se.	Jerry Parkinson.
Green Bay.....	Brown.....	617	23	71.4	+ 4.4	94	24	46	31	30	4.24	- 1.83	0.40	0.0	8	7	12	12	se.	U. S. Weather Bureau.
Herbster.....	Bayfield.....	700	1	63.4 <sup>a</sup>	.....	96 <sup>a</sup>	5	39 <sup>a</sup>	20 <sup>†</sup>	49	4.37	.....	1.50	0.0	10	18 <sup>a</sup>	2 <sup>a</sup>	10 <sup>a</sup>	w.	Wm. Angell.
Iron River.....	Bayfield.....	1,096	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Harry C. Hale.
Kewaunee.....	Kewaunee.....	590	.....	69.8	.....	95	23	50	30	31	2.08	.....	1.10	0.0	8	12	6	13	s.	Eugene V. Kimball.
Manitowoc.....	Manitowoc.....	616	59	69.2	+ 3.5	93	24 <sup>†</sup>	49	21	31	3.23	- 0.11	1.42	0.0	10	10	12	9	s.	Johanna Lups.
Menasha.....	Winnebago.....	764	12	.....	.....	.....	.....	.....	.....	.....	4.14	+ 1.93	1.41	0.0	8	26	1	4	sw.	George T. Allanson.
Menomonee Falls.....	Waukesha.....	842	.....	71.1	.....	92	8	46	30	31	3.03	.....	0.94	0.0	7	19	4	8	se.	S. H. Christman.
Milwaukee.....	Milwaukee.....	681	39	71.9	+ 3.2	92	8	49	31	25	3.18	+ 0.36	0.77	0.0	8	18	10	3	de.	U. S. Weather Bureau.
New London.....	Outagamie.....	762	13	71.6	+ 3.9	95	6 <sup>†</sup>	48	21 <sup>†</sup>	36	3.88	+ 0.92	1.00	0.0	9	16	6	9	sw.	A. H. Pape.
Oconto.....	Oconto.....	590	18	70.4	+ 3.3	94	24	43	30	35	0.90	- 1.78	0.27	0.0	5	15	13	3	sw.	W. K. Smith.
Oshkosh <sup>d</sup> .....	Winnebago.....	744	20	71.0	+ 2.2	92	6 <sup>†</sup>	50	20 <sup>†</sup>	36	.....	.....	1.58	0.0	4	17	9	1	sw.	Evan Vincent.
Pine River.....	Waushara.....	900	14	70.6	+ 2.7	92	6 <sup>†</sup>	46	29	34	3.98	+ 0.94	1.06	0.0	8	12	14	5	nw.	G. H. Carpenter.
Plum Island.....	Door.....	588	1	70.4	.....	85	7	47	21	26	1.97	.....	0.61	0.0	7	6	14	11	se.	John P. Whelan.
Port Washington.....	Ozaukee.....	713	16	70.9	+ 3.5	93	8 <sup>†</sup>	52	29 <sup>†</sup>	28	4.34	+ 1.36	2.01	0.0	6	18	6	7	se.	R. C. Kann.
Racine.....	Racine.....	633	12	72.9	+ 2.6	96	8	52	21 <sup>†</sup>	31	2.90	- 0.26	1.14	0.0	10	19	6	6	de.	Daniel Davis.
Sheboygan.....	Sheboygan.....	831	9	71.8	+ 3.3	95	25	53	21 <sup>†</sup>	30	3.68	+ 0.87	0.86	0.0	10	13	14	4	se.	Louis C. Meyer.
Sturgeon Bay.....	Door.....	600	11	69.0	+ 3.1	93	15	40	30	36	0.95	.....	0.50	0.0	6	12	15	4	se.	Adam N. Dier.
Superior <sup>§</sup> .....	Douglas.....	671	.....	65.7	.....	88	4	48	31	30	4.68	.....	2.02	0.0	15	12	10	9	de.	E. B. Banks.
Waupaca.....	Waupaca.....	857	13	71.0	+ 3.0	95	6	48	20 <sup>†</sup>	39	4.20	+ 0.93	1.24	0.0	9	14	4	13	se.	J. H. Flagg.
Illinois.																				
Chicago.....	Cook.....	824	39	71.2	+ 3.6	93	8	59	31	21	6.20	+ 3.32	3.52	0.0	10	14	12	5	ne.	U. S. Weather Bureau.
Indiana.																				
Auburn.....	Dekalb.....	874	6	71.2	- 0.7	94	8	44	22	39	3.38	+ 0.14	2.70	0.0	6	19	2	10	e.	Mrs. Josie Kuhlman.
Elkhart <sup>§</sup> .....	Elkhart.....	801	.....	75.0	.....	96	9 <sup>†</sup>	54	21	29	4.21	.....	1.40	0.0	10	.....	.....	.....	sw.	Miles Medical Co.
Fort Wayne.....	Allen.....	775	5	74.0	+ 1.8	95	8 <sup>†</sup>	46	22	39	2.32	- 1.76	0.83	0.0	7	17	10	4	sw.	O. E. Mohler.
Hammond.....	Lake.....	598	12	75.0	+ 4.0	95	8	47	30	35	3.17	+ 1.20	1.67	0.0	5	11	11	9	.....	C. W. Whitney.
Lima.....	Lagrange.....	886	.....	73.0	.....	96	8	48	30	43	6.63	.....	2.55	0.0	9	23	2	6	w.	Jas. E. Zook.
South Bend.....	St. Joseph.....	726	10	73.0	+ 0.2	92	8	47	21	32	3.68	+ 0.56	1.48	0.0	9	20	5	6	s.	H. H. Swaim.
Michigan.																				
Adrian.....	Lenawee.....	707	31	72.8	+ 3.3	95	8 <sup>†</sup>	44	22	43	1.32	- 1.87	0.35	0.0	8	12	13	6	w.	B. F. Gibbs.
Agricultural College.....	Ingham.....	820	45	70.8	+ 2.2	93	25	44	30	32	1.61	- 1.25	0.63	0.0	10	19	9	3	e.	Prof. A. J. Patten.
Allegan.....	Allegan.....	698	18	72.8	+ 3.8	94	24	45	31	39	5.02	+ 2.86	1.35	0.0	7	9	16	6	sw.	Agent, P. M. R. R.
Alma.....	Gratiot.....	750	22	70.2	+ 3.0	94	25	39	30	36	1.32	- 1.42	0.45	0.0	8	11	13	7	nw.	P. M. Smith.
Alpena.....	Alpena.....	609	36	67.4	+ 3.6	93	24	42	21	29	1.23	- 2.25	0.34	0.0	12	8	18	5	nw.	U. S. Weather Bureau.
Ann Arbor.....	Washtenaw.....	930	29	71.0	+ 1.8	95	25	42	22	38	1.25	- 1.34	0.49	0.0	10	15	10	6	sw.	University of Michigan.
Arbela.....	Tuscola.....	728	13	71.2	+ 2.6	97	25	39	21 <sup>†</sup>	37	2.02	- 0.68	0.97	0.0	5	15	18	8	sw.	Wm. Atkin.
Ball Mountain.....	Oakland.....	983	19	70.1	+ 2.6	94	25	47	21 <sup>†</sup>	35	2.96	+ 0.04	1.06	0.0	5	15	7	9	sw.	F. N. Hilton.
Baraga.....	Baraga.....	623	7	66.4 <sup>a</sup>	+ 2.5	92 <sup>a</sup>	7	40 <sup>a</sup>	30	38 <sup>a</sup>	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, D. S. S. & A. Ry.
Battle Creek.....	Calhoun.....	822	25	71.6	+ 0.9	91	24 <sup>†</sup>	51	22	32	3.51	+ 0.82	1.40	0.0	6	17	11	3	sw.	Elmer E. Sager.
Bay City.....	Bay.....	593	13	70.6	+ 2.3	94	8	44	29	31	0.73	- 2.36	0.20	0.0	7	26	4	1	e.	Agent, P. M. R. R.
Benzonia.....	Benzonia.....	832	13	70.2	+ 5.6	94	7	41	31	37	0.46	- 2.33	0.24	0.0	4	15	10	6	sw.	M. S. Joiner.
Berlin <sup>a</sup> .....	St. Clair.....	20	.....	69.4	+ 1.2	94	25	41	30	39	3.02	+ 0.21	2.13	0.0	6	5	18	7	sw.	R. O. Gould.
Big Rapids.....	Macomb.....	13	.....	69.8	+ 3.7	95	7	36	21	46	2.02	- 0.91	1.62	0.0	8	19	8	4	sw.	Charles Gay.
Blaney.....	Schoolcraft.....	906	2	58.5	.....	92	5	30	17	47	2.70	.....	0.95	0.0	6	24	0	7	sw.	Dr. S. S. Hackwell.
Bloomington.....	Van Buren.....	5	.....	71.6	.....	92	8	46	30	32	3.69	.....	1.45	0.0	8	21	6	3	nw.	John M. Haven.
Cadillac.....	Wexford.....	1,378	.....	70.6	.....	95	7	38 <sup>a</sup>	30	40 <sup>a</sup>	1.17	.....	0.50	0.0	6	15	11	5	n.	A. J. Teed.
Calumet.....	Houghton.....	1,246	21	65.4	+ 3.2	86	27	42	30 <sup>†</sup>	31	1.60	- 1.29	0.56	0.0	8	13	8	10	w.	E. S. Grierson.
Cassopolis.....	Cass.....	903	8	73.0	+ 8.0	91	7 <sup>†</sup>	49	30	28	3.47	+ 0.63	1.34	0.0	5	27	0	4	sw.	Agent, M. C. R. R.
Charlevoix.....	Charlevoix.....	610	22	68.6	+ 2.3	93	24	40	31	35	2.29	+ 0.39	0.72	0.0	9	22	4	5	nw.	Agent, P. M. R. R.
Charlotte.....	Eaton.....	.....	5	70.2	.....	91	25	44	21 <sup>†</sup>	34	2.01	- 0.02	0.59	0.0	11	12	13	6	w.	City of Charlotte.
Chatham.....	Alger.....	875	8	62.9	- 0.4	91	6	28	30	40	2.17	- 1.11	0.64	0.0	12	12	12	7	n.	U. P. Express Station.
Cheboygan.....	Cheboygan.....	611	19	68.4	+ 3.6	92	27	39	21 <sup>†</sup>	41	2.80	- 0.32	1.65	0.0	6	4	25	2	sw.	E. A. Bouchard.
Clinton.....																				

TABLE 1.—Climatological data for August, 1909. District No. 4—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, of inch or more.	Number of clear days.			Number of partly cloudy days.
Michigan—Cont'd.																			
Holland.....	Ottawa.....	610	3	70.8		89	31	42	30	3.09	0.75	0.0	10	17	12	1	nw.	City of Holland.	
Houghton.....	Houghton.....	668	8	66.1	+ 2.8	90	27	44	30	35	1.58	- 1.29	0.44	0.0	12	10	12	e.	U. S. Weather Bureau.
Howell.....	Livingston.....	924	17	71.7	+ 3.8	93	25	42	30	32	2.31	- 0.52	1.65	0.0	5	18	6	sw.	Frank Sharp.
Humboldt.....	Marquette.....	1,536	12	63.4	+ 3.9	90	6	28	30	46	2.40	- 0.01	0.98	0.0	6	11	7	e.	Agent, D. S. S. & A. Ry.
Iron Mountain.....	Dickinson.....	1,111	8	68.0	+ 3.9	93	24	41	31	38	0.85	- 2.01	0.47	0.0	3	5	14	sw.	Chapin Min. Co.
Iron River.....	Iron.....	1,504	12	66.2	+ 4.0	89	5 <sup>d</sup>	36	30	42	3.17	- 1.03	0.75	0.0	10	19	7	s.	Victor D. Laing.
Ironwood.....	Gogebie.....	1,520	6	67.8	+ 3.9	87	27	43	30	28	2.70	- 0.05	1.35	0.0	11	20	8	s.	Prof. J. V. Brennan.
Ishpeming.....	Marquette.....	1,536	6	65.6 <sup>d</sup>	+ 3.4	90 <sup>d</sup>	6	34 <sup>d</sup>	30	33 <sup>d</sup>	2.17	- 1.48	0.70	0.0	9	10	14	sw.	Clo'd Cliffs Iron Co.
Isle Royale.....	Keweenaw.....	610	2	59.6		77	9 <sup>d</sup>	45	1	26	1.37	0.45	0.0	9	12	1	ne.	John H. Malone.	
Ivan.....	Kalkaska.....	20	69.4	+ 4.2		98	24	34	21	46	1.45	- 1.60	0.96	0.0	7	12	16	s.	O. L. Giddings.
Jackson.....	Jackson.....	927	12	72.0	+ 1.2	95	8 <sup>d</sup>	47	30	39	2.10	- 0.08	0.88	0.0	10	11	11	sw.	Agent, M. C. R. R.
Jeddo.....	St. Clair.....	667	20	70.3	+ 2.4	96	25	44	30	35	1.44	- 1.43	0.48	0.0	8	9	10	sw.	William Bice.
Kalamazoo.....	Kalamazoo.....	955	33	70.3	+ 0.4	87	8 <sup>d</sup>	48	30	27	3.97	+ 1.38	2.10	0.0	4	16	9	s.	Kalamazoo Asylum.
Lansing.....	Ingham.....	881	22	71.2	+ 2.7	93	25	45	30	31	2.03	- 0.56	0.66	0.0	12	12	9	sw.	State Board of Health.
Lapeer.....	Lapeer.....	827	10	71.0	+ 4.1	95	25	44	31	34	1.85	- 0.45	0.65	0.0	8	26	5	sw.	Michigan Home.
Ludington.....	Mason.....	586	11	68.6	+ 1.0	88	7	48	13	24	1.96	+ 0.06	0.96	0.0	3	20	6	sw.	Agent, P. M. R. R.
Mackinac Island.....	Mackinac.....	831	9	68.0	+ 2.5	86	24	42	21	26	4.22	+ 0.71	1.50	0.0	9	21	6	sw.	M. I. S. P. Com.
Mackinaw.....	Cheboygan.....	592	13	67.8	+ 2.2	93	24	40	21	33	2.05	- 1.97	1.00	0.0	3	16	14	sw.	Agent, G. R. & I. Ry.
Mancelona.....	Antrim.....	1,121	13	67.5	+ 3.0	94	24	35	21	42	1.40	- 1.00	1.15	0.0	3	27	2	s.	Do.
Manistee.....	Manistee.....	600	12	70.4	+ 5.4	91	24	41	21	33			0.0	0	19	11	sw.	Agent, P. M. R. R.	
Maple Ridge.....	Delta.....	734	38	65.8	+ 2.3	92	6	44	30	28	1.34	- 1.52	0.36	0.0	9	10	3	sw.	Herman Johnson.
Marquette.....	Marquette.....	734	38	65.8	+ 2.2	94	24	49 <sup>a</sup>	29	32 <sup>a</sup>	0.80	- 1.86	0.34	0.0	4	18	9	sw.	U. S. Weather Bureau.
Menominee.....	Menominee.....	581	10	69.0 <sup>a</sup>	+ 2.2	94	24	49 <sup>a</sup>	29	32 <sup>a</sup>	0.80	- 1.86	0.34	0.0	4	18	9	sw.	Fire Department.
Midland.....	Midland.....	604	10	70.7	+ 1.8	96	25	45	21	38			0.0	0	16	4	sw.	Agent, P. M. R. R.	
Montague.....	Muskegon.....	660	6	68.4	+ 0.9	86	8 <sup>d</sup>	43	22	33			0.0	0	11	10	4	sw.	G. A. Whitbeck.
Morenci.....	Lenawee.....	811	2	70.6		91	8 <sup>d</sup>	43	22	36	1.76	0.86	0.0	7	16	12	sw.	George J. Tripp.	
Mount Clemens.....	Macomb.....	615	9	70.2	+ 0.5	95	25	45	21	33	1.73	- 0.01	0.56	0.0	6	12	14	sw.	Herman H. Orbits.
Mount Pleasant.....	Isabella.....	826	10	72.6	+ 5.4	98	8	41	21	38	0.98	- 1.36	0.70	0.0	3	19	11	sw.	Agent, P. M. R. R.
Muskegon.....	Muskegon.....	587	13	69.6	+ 1.1	87	8	43	21	27	0.59	- 1.52	0.45	0.0	2	24	3	w.	Agent, G. R. & I. Ry.
Newberry.....	Luce.....	773	8			89	7						0.0	0	22	0	sw.	Agent, D. S. S. & A. Ry.	
Old Mission.....	Grand Traverse.....	848	15	70.2	+ 3.1	93	24	44	30	31	2.38	- 0.56	1.08	0.0	9	8	17	sw.	E. O. Ladd.
Olivet.....	Eaton.....	934	18	69.6	+ 1.6	88	25	47	30	25	4.57	+ 1.90	2.09	0.0	10	16	7	sw.	Prof. G. A. Knapp.
Omer.....	Arenac.....	616	10	70.5	+ 6.2	96	25	48	26	48	0.75	- 1.52	0.45	0.0	2	7	23	sw.	Agent, D. & M. Ry.
Onaway.....	Presque Isle.....	826	6	69.4	+ 6.2	94	7 <sup>d</sup>	34	30	54	3.15	- 0.23	0.85	0.0	7	5	0	sw.	Do.
Ovid.....	Clinton.....	760	19	71.2	+ 3.5	98	25	40	30	39 <sup>a</sup>	1.46	- 0.82	0.49	0.0	8	15	7	sw.	George B. Faxon.
Owosso.....	Shiawassee.....	731	12	71.6	+ 1.6	95	25	40	30	37	1.23	- 0.96	0.30	0.0	8	3	28	sw.	Owosso Sugar Co.
Potoskey.....	Emmet.....	660	19	68.3	+ 3.2	93	24	40	30	33	1.64	- 1.45	0.70	0.0	8	15	12	w.	Agent, G. R. & I. Ry.
Plymouth.....	Wayne.....	725	12	71.2	+ 1.0	98	25	42	31	42	2.71	+ 0.93	1.40	0.0	4	18	0	sw.	Agent, P. M. R. R.
Pontiac.....	Oakland.....	935	9	71.0	+ 3.3	95	25	47	21	36	1.66	- 1.28	0.93	0.0	8	22	5	sw.	Fred W. Shaw.
Port Austin.....	Huron.....	618	13	68.4	+ 2.1	94	25	47	11	37	0.91	- 1.43	0.41	0.0	3	5	23	sw.	Agent, P. M. R. R.
Port Huron.....	St. Clair.....	639	34	69.4	+ 2.1	94	25	48	30	28	2.23	- 0.40	0.67	0.0	9	12	8	sw.	U. S. Weather Bureau.
Powers.....	Menominee.....	868	8	67.9	+ 4.9	94	25 <sup>d</sup>	33	30	41	0.80	0.40	0.0	3	10	19	sw.	Agent, C. & N. W. Ry.	
Reed City.....	Oceola.....	1,033	13	70.2	+ 3.1	88	5	40	21	39	1.20	- 0.99	0.30	0.0	7	25	2	w.	Agent, P. M. R. R.
Rosecommon.....	Rosecommon.....	1,141	5	66.4		96	25	27	21	51	1.45	- 1.35	0.60	0.0	5	15	14	w.	Agent, M. C. R. R.
Saginaw.....	Saginaw.....	601	7	72.3	+ 3.7	95	25	45	30	30	1.18	- 2.04	0.55	0.0	6	7	23	sw.	Postmaster.
Saginaw, W. S.....	do.....	601	14	71.4	+ 2.2	96	25	42	30	32	1.27	- 1.82	0.63	0.0	8	11	16	sw.	R. B. Hudson.
St. Ignace.....	Mackinac.....	593	19	69.0	+ 5.6	89	28	43	21	34	1.15	- 1.86	0.60	0.0	4	25	0	sw.	Agent, D. S. S. & A. Ry.
St. James.....	Charlevoix.....	681	3	70.2		89	6	50	11	20	1.42	0.51	0.0	5	14	11	sw.	Rev. N. Wilhelm.	
St. Johns.....	Clinton.....	779	17			91	28	49	30	24	2.90	+ 0.51	0.80	0.0	5	18	5	sw.	City of St. Johns.
St. Joseph.....	Berrien.....	593	23	72.2	+ 1.7	92	9 <sup>d</sup>	40	30	43	1.73	+ 0.51	0.55	0.0	5	19	0	sw.	City of St. Joseph.
Sandusky.....	Sauk.....	790	32	69.2	+ 3.1	92	9 <sup>d</sup>	40	30	43	1.73	+ 0.51	0.55	0.0	5	19	0	sw.	Agent, P. M. R. R.
Saranac.....	Ionian.....	639	14	71.4	+ 4.0	90	6	40	30	37	3.57	+ 0.20	1.11	0.0	10	12	9	sw.	John Wallington.
Sault Ste. Marie.....	Chippewa.....	614	21	64.6	+ 4.0	90	6	40	30	34	3.49	- 0.06	1.74	0.0	8	11	9	sw.	U. S. Weather Bureau.
South Haven.....	Van Buren.....	585	13	66.6	- 1.1	85	14 <sup>d</sup>	44	21	30	2.85	+ 0.01	1.40	0.0	5	20	9	sw.	Mrs. M. E. De Diemar.
Stanton.....	Montcalm.....	880	17			90	27	42	30	35	2.72	1.05	0.0	16	13	10	sw.	City of Stanton.	
Thomaston.....	Gogebie.....	1,347	12	65.6	+ 2.8	88	41	35	30	39	4.60	+ 1.58	1.10	0.0	6	10	17	sw.	Agent, D. S. S. & A. Ry.
Thornville.....	Lapeer.....	975	32	68.9	- 0.7	91	25 <sup>d</sup>	44	21	27	3.05	+ 0.13	1.02	0.0	7	20	8	sw.	Dr. J. S. Caulkins.
Traverse City.....	Grand Traverse.....	588	12	70.8	+ 3.5	98	25	42	21	33	2.00	- 0.44	1.00	0.0	3	18	1	sw.	Agent, G. R. & I. Ry.
Vassar.....	Tuscola.....	641	9	71.6	+ 3.3	93	26	40	21	44	1.05	- 1.63	0.50	0.0	4	25	0	sw.	Agent, P. M. R. R.
Victoria.....	Ontonagon.....		67.0			90	27	42	30	35	2.72	1.05	0.0	16	13	10	sw.	R. S. Schultz, Jr.	
Watersmeet.....	Gogebie.....	1,605		65.8		88	7	34	30	40	5.45	2.50	0.0	13	9	14	sw.	B. H. Grant.	
Washtenaw.....	St. Joseph.....	842	12	70.9	+ 2.0	89	8	49	21	28	4.86	+ 1.86	1.30	0.0	10	24	2	sw.	Charles A. Palmer.
Webberville.....	Ingham.....	884	7	71.3	+ 5.5	93	25	43	30	36	3.60	+ 0.17							



TABLE 1.—Climatological data for August, 1909. District No. 4—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Ohio—Cont'd.																				
Upper Sandusky.....	Wyandot.....	854	27	72.4	+ 1.5	92	8	43	22	37	8.30	+ 5.61	4.85	0.0	11	20	9	12	nw.	R. S. Kiefer.
Vickery.....	Sandusky.....	588	17	72.3	+ 1.2	95	25	43	22	39	3.44	+ 0.62	1.68	0.0	7	14	15	4	ne.	John W. Barr.
Wauseon.....	Fulton.....	780	40	71.4	+ 1.2	92	8	43	22	38	4.84	+ 2.23	2.49	0.0	8	17	10	12	e.	Thomas Mikesell.
Wellington.....	Lorain.....	856	17	71.4	+ 0.2	94	25	41	22	40	3.81	+ 0.98	1.53	0.0	12	18	11	4	nw.	W. D. Warren.
Willoughby Lake.....	Lake.....										2.31	- 0.11	0.60	0.0	10	12	12	7	n.	C. J. Richardson.
Pennsylvania.																				
Erie.....	Erie.....	713	36	69.2	- 0.7	85	14	49	22	21	1.76	- 1.50	0.90	0.0	6	12	13	6	s.	U. S. Weather Bureau.
New York.																				
Adams Center.....	Jefferson.....	540	18	67.8		90	25	42	31	30	2.36	- 0.97	1.40	0.0	8	16	12	3	s.	A. E. Cooley.
Allegany.....	Allegany.....	1,340	26	63.4	- 1.6	91	8	32	22	45	2.20	- 1.83	1.00	0.0	6	2	13	16	w.	Charles P. Arnold.
Appleton.....	Niagara.....	270	18	68.6	+ 1.9	96	25	42	22	35	1.89	- 1.10	1.43	0.0	5	18	11	2	nw.	H. A. Van Wagener.
Auburn.....	Cayuga.....	715	40	67.4	- 1.4	95	8	42	31	35	1.50	- 2.03	1.00	0.0	6	27	2	2	n.	A. H. Underwood.
Avon.....	Livingston.....	585	14	67.1	- 0.5	93	8	39	31	41	0.57	- 2.42	0.40	0.0	3	20	8	3		W. G. Markham.
Benson Mines.....	St. Lawrence.....		1			89	1				2.24		0.87	0.0	5	12	18	1	sw.	R. C. Folger.
Blue Mountain Lake.....	Hamilton.....	1,750	9								3.15		1.75	0.0	5	23	2	6	w.	B. F. Merwin.
Brockport.....	Monroe.....	537	13	68.6	- 0.1	90	8	42	30	35	3.14	+ 0.55	2.18	0.0	7	18	12	1		W. H. Lennon.
Buffalo.....	Erie.....	767	58	69.4	+ 0.6	88	7	50	31	22	1.69	- 1.30	0.72	0.0	8	11	8	12	sw.	U. S. Weather Bureau.
Canton.....	St. Lawrence.....	448	15	66.0	- 1.8	90	8	41	31	34	2.59	- 0.10	1.10	0.0	10	15	11	5	sw.	Do.
Cape Vincent.....	Jefferson.....	246	4	67.2		84	8	41	30	39	3.36		1.84	0.0	6	20	9	2	sw.	V. M. Rice.
Carvers Falls.....	Washington.....	243	11	65.5	- 0.9	93	8	38	31	34	2.23	- 1.13	1.10	0.0	5	22	5	4	n.	W. R. North.
Chazy.....	Clinton.....	151	15	67.9		94	8	37	31	40	4.38		1.25	0.0	7	20	3	8	n.	W. N. Thayer.
Dannemora.....	do.....	1,490	4	65.2		90	25	38	31	30	2.56		0.72	0.0	8	8	15	8	sw.	Jos. S. Wilfert.
Elba.....	Genesee.....	500	10	66.4	- 0.7	88	8	40	22	34	1.79	- 0.70	1.15	0.0	3	25	3	3	sw.	Aaron W. Maddox.
Faust.....	Franklin.....	1,552	9	61.4		85	8	34	31	35	1.65		0.79	0.0	7					D. H. Wells.
Fayetteville.....	Onondaga.....	530	8	69.6		97	8	42	30	36	1.45		0.56	0.0	8	23	3	5	nw.	W. S. Everham.
Gabriels.....	Franklin.....	1,729	7	61.4		90	8	27	31	46	3.97		1.70	0.0	8	11	14	6	nw.	W. S. Everham.
Harkness.....	Clinton.....	622	6	66.0		92	8	37	31	32	2.56		0.62	0.0	9	21	5	5	s.	J. W. Harkness.
Hemlock Lake.....	Livingston.....	900	11	67.2	- 1.7	89	8	40	31	33	1.35	- 1.59	0.60	0.0	4	21	5	5	s.	D. H. Westbury.
Hunt.....	do.....	1,321	10	67.7	+ 0.2	96	8	40	22	36	2.32	- 0.46	0.75	0.0	6	16	13	2	ne.	W. S. Barrager.
Ithaca.....	Tompkins.....	928	31	67.3	- 0.9	95	8	42	22	38	1.63	- 1.61	0.50	0.0	7	14	9	8	nw.	U. S. Weather Bureau.
Keene Valley.....	Essex.....	1,000	11	64.6	+ 0.5	92	8	31	31	45	2.05	- 1.73	0.64	0.0	10	16	5	10	s.	E. R. Wells.
Keuka Park.....	Yates.....	750	63	69.2		98	8	41	31	41	2.43	- 0.48	1.06	0.0	10	20	5	6	nw.	Dean L. Myers.
King Ferry.....	Cayuga.....		9								2.10	- 3.10	0.65	0.0	7	21	4	6	w.	L. A. Goodyear.
Lake George.....	Warren.....	350	4	66.2		96	8	40	31	37	3.83		1.25	0.0	10	17	10	4	ne.	Charles Forsell.
Lake Placid Club.....	Essex.....	1,864	1	59.2		84	25	30	31	36	2.67		0.64	0.0	11	20	8	3	nw.	Henry Van Hoevenberg.
Le Roy.....	Genesee.....	920	19	68.0	+ 1.1	92	8	43	30	34	1.24	- 2.11	0.44	0.0	10	16	5	10	sw.	F. W. Ball.
Lockport.....	Niagara.....	650	22	68.2	+ 0.2	90	8	44	31	30	0.90	- 1.80	0.48	0.0	5	18	8	5	sw.	J. E. Wakeman.
Lowville.....	Lewis.....	900	42	64.0	- 0.8	89	8	32	31	43	2.53	- 0.84	1.65	0.0	4	21	6	4	w.	Charles J. Rice.
Lyndenville.....	Orleans.....		9								1.57	- 0.97	1.48	0.0		27	2	2	sw.	Milton St. John.
Moir.....	Franklin.....	200	9	67.8		92	25	39	31	34	2.14		0.71	0.0	9	11	18	2	w.	C. E. McBride.
Nehasane.....	Hamilton.....	1,750	1	60.4		88	8	30	31	44	2.31		0.96	0.0	10	21	3	7	e.	A. C. Heyburn.
North Hammond.....	St. Lawrence.....	300	20																	
North Lake.....	Herkimer.....	1,822	8																	H. A. Pauls.
Ogdensburg.....	St. Lawrence.....	175	17	67.8	+ 0.6	90	7	41	31	41	2.47	- 0.74	1.00	0.0	6	22	8	1	sw.	State Hospital.
Old Forge.....	Herkimer.....	1,733	1	62.4		90	8	34	31	42	2.32		0.88	0.0	8	13	12	6		Stuart W. Nelson.
Oswego.....	Oswego.....	335	39	66.5	- 2.3	88	25	44	31	30	2.00	- 0.69	1.73	0.0	8	17	7	7	s.	U. S. Weather Bureau.
Otto.....	Cattaraugus.....	1,410	5																	
Palermo.....	Oswego.....	460	50								1.77	- 1.07	1.74	0.0	3	22	7	2	nw.	E. B. Bartlett.
Perry City.....	Schuyler.....	1,038	19	68.2	+ 2.1	93	8	36	31	43	2.72	- 1.44	0.75	0.0	6	17	9	5	nw.	W. H. Jeffers.
Philadelphia.....	Jefferson.....	485	3	67.6		88	25	41	31	35	2.08		1.01	0.0	9	8	21	2	w.	E. D. Babcock.
Plattsburg.....	Clinton.....	170	50	66.5	- 0.8	96	8	44	30	35	2.19	- 1.27	0.70	0.0	10	15	12	4	s.	T. P. Davison.
Potsdam.....	St. Lawrence.....	300	33																	Lloyd W. Weed.
Raquette Lake.....	Hamilton.....		1	62.0		84	8	37	31	30	1.79		0.75	0.0	6	15	7	9	w.	R. J. Dunning.
Rochester.....	Monroe.....	523	80	69.1	+ 0.8	91	8	46	22	34	1.70	- 1.26	1.02	0.0	7	15	11	5	sw.	U. S. Weather Bureau.
Romulus.....	Seneca.....	719	17																	
Scottsville.....	Monroe.....										1.94		0.97	0.0	5					F. Budlong.
Shortsville.....	Ontario.....	740	10	67.9	- 0.1	90	8	44	30	32	2.39	- 0.40	1.01	0.0	7	21	6	4	nw.	C. H. Latting.
Skaneateles.....	Onondaga.....		9								1.84	- 2.32	1.00	0.0	9					Edward Conson.
Syracuse.....	do.....	597	7	67.4	- 1.2	92	8	44	31	29	1.96	- 1.37	1.54	0.0	7	15	10	6	s.	U. S. Weather Bureau.
Ticonderoga.....	Essex.....	344	11			100	8	40	31		3.01	- 0.11	1.01	0.0	4	19	5	7		Eva M. De Lano.
Trudeau.....	do.....	1,620	16																	
Volusia.....	Chautauqua.....	1,167	10	67.1	+ 0.4	85	8	45	22	30	4.28	+ 1.63	1.64	0.0	7	14	15	2	n.	Benjamin Breads.
Watertown.....	Jefferson.....	737	16	67.2	- 1.1	89	8	40	31	34	2.29	- 1.63	0.84	0.0	8	22	5	4	nw.	H. P. Dunlap.
Wedgwood.....	Schuyler.....	1,430	20	67.8	0.0	95	8	44	22	35	2.69	- 1.93	0.80	0.0	8	20	5	6	se.	O. F. Corwin.
Westfield.....	Chautauqua.....	837	13	67.5	- 1.2	86	8	48	22	25	4.84	+ 1.68	2.17	0.0	6					John R. Rogers.
Youngstown.....	Niagara.....		7								3.43		2.81	0.0	4	12	18	1	e.	B. V. Brookins.
Vermont.																				
Burlington.....	Chittenden.....	404	3	65.2	- 0.9	92	8	38	31	33	2.83	- 1.18		0.0	13	6	14	11		U. S. Weather Bureau.
Cornwall.....	Addison.....	507	17	66.8	- 1.1	95	8	40	31	32	3.28	- 0.35	1.35	0.0	9	13	9	7	n.	C. H. Lane.
Enosburg Falls.....	Franklin.....	601	19	64.4	- 0.2	91	8	32	31	41	3.26	- 0.63	0.74	0.0	14	12	10	9	n.	L. H. Pomeroy.
Northfield.....	Washington.....	876	24	61.2	- 1.7	89	8	31	31	38	2.53	- 1.40	0.77	0.0	11	9	15	7	s.	U. S. Weather Bureau.
Wells.....	Rutland.....	750	18	64.2	- 2.2	86	8	40	31	28	3.68	- 0.70	1.24	0.0	10	13	13	5	s.	E. R. Pember.

\* Precipitation included in that of the next measurement.

\* Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.

† Also on other dates.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

|| Estimated by observer.

|| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

\*, b, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

## MONTHLY WEATHER REVIEW.

AUGUST, 1909

TABLE 2.—Daily precipitation for August, 1909. District No. 4, Lake Region.

Stations.	River basins.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Minnesota.																																		
Duluth.	Lake.			.64				T.	T.	.21	.238	.44	T.	.01	.66				T.						.15	.32	T.		.01		.09		4.91	
Floodwood.	do.	.34	.22			.25	.25	.28		1.52	1.55				.18									.26	.57						.11		5.53	
Mt. Iron.	do.	.35	.01	.67		.65	.87	.81		1.02	1.15			.01	.53			T.	.06				.20	.08	.41	.51			.67	.06	.04		8.13	
Stephen's Mine.	do.	.01		.41		.23	1.23	.63		1.17	1.21			1.57								.17	.11	.05	.17	.18			.56	.08			7.78	
Two Harbors.	do.	.50		T.		.75		.20		.80	1.95													.10	.80					.50			5.60	
Wisconsin.																																		
Appleton.	Fox.	.37		.07	.28			.07	.15		.56				.20				.08	T.			T.				.02	.44					2.24	
Ashland.	Lake.	.26		.50	.11		.47	.06		.24	1.65	.04	.05		.46									.06	.13				.04		.07		4.14	
Cecil.	Fox.	.39		.12	.38			.38			.31				.04												.07	T.					1.69	
Chilton.	Lake.	.93		.10	.28					1.08				1.31									T.					T.	1.10	.44			5.24	
Crandon.	Fox.	.19	.02	.20	.61			.08		T.	.90	T.	T.		.03												T.	T.			T.		2.92	
Florence.	Menominee.	.24			.84			.17			.54				.18										.34				.41		*	.20	2.92	
Fond du Lac.	Fox.	.40		.05						1.26					.90	.03													.19	.53			3.36	
Grand River Locks.	do.	.49								.45	.09			1.20	.03									.29					.40	.29			3.21	
Green Bay.	Lake.	.27		.03	.37			.01		T.	.27			T.	.13					T.				T.			.08		.08				1.24	
Herbster.	do.	.45		T.				.25		1.00	1.50			.10	.15										.25	.47			.10		.10		4.37	
Iron River.	do.				1.10					.10	.30				.10					.01					.02				.40			T.	2.08	
Kewaunee.	do.	.05			1.10					.10	.30				.10						.03			T.				.16	.33				3.23	
Manitowoc.	do.	.30		.02	1.40			.11		.48				.04	.36														.14	.36			3.68	
Menasha.	Fox.	.57		.61				.75		.65				.03	.06								T.				.06	1.41	.02	.20			4.14	
Menominee Falls.	Lake.	.27		.52						.67					.94	.41						T.	T.						.14	.36			3.03	
Milwaukee.	do.	.21		.62	.20			T.	.01	.77				.38	.74					T.	T.							.25	T.			3.18		
New London.	Fox.	.35			.04			.09		.80				.90										.20			.50		.50				3.88	
Oconto.	Lake.			.15				T.		.36				.10	T.										.02				.27				0.90	
Oshkosh.	Fox.																																	
Pine River.	do.	1.00		T.				.04		T.	.79			1.06	T.									.28				.07	.70	.04			3.98	
Plum Island.	Lake.		.61		.48			T.			.20	T.		.02												.03		.12	.75	.42		.21	1.97	
Port Washington.	do.	2.01		.43						.55				.48																			4.34	
Racine.	do.	.26	.01	.05	.18					.61	.30	.01			1.14	.22													.12	T.			2.90	
Sheboygan.	do.	.44	.39	.11	T.				.04	.67				.86		.04						.04						T.	.62	.47			3.68	
Sturgeon Bay.	do.				.12			T.		.17				.13	T.											.03		.14	.36			T.	0.95	
Superior.	do.	.80		.12	.13			.17	.01	2.02	.01	T.	.02	.70						.10						.31	.13		.14	.07	.02	.07	4.68	
Waupaca.	Fox.	1.10		.05				.11		.70				.45											.35		.20		1.00	.24			4.20	
Illinois.																																		
Chicago.	Lake.	T.		.01	.01					.02	.59	.23	.09	3.49	.40												.14		1.22			T.	6.20	
Indiana.																																		
Auburn.	Maumee.					T.								.09	2.70	.15												.02		.27	.15		3.38	
Elkhart.	St. Joseph.			.10	T.	.77			.08				.01		.94	.48											.28	.03	.12	1.40	T.		4.21	
Fort Wayne.	Maumee.			.10									T.		.30	.83	.03										T.	.05	.52	.49			2.32	
Hammond.	Lake.										.82		.48		1.67												.10						3.17	
Lima.	St. Joseph.			.08	1.20	.44				.09				.01	2.55													.22		1.95	.00		6.63	
South Bend.	do.			.59	.07								.10	.01	.03	1.48	.24											.11		1.05	T.		3.68	
Michigan.																																		
Adrian.	Raisin.			.08	.19	.11			.05		T.			.31	T.	.15					T.						.08		T.	.35			1.32	
Agricultural College.	Grand.	.13	.17		.16				.14		.01	.07			.80	.62	T.				.27						.03		.01	.62			1.61	
Allegan.	Kalamazoo.	.97	.12		T.				.16					.10	.09	.12												T.	1.35	.91			5.02	
Alma.	Saginaw.	T.	T.	T.	.41		.01			.08	.06	.10		.09	.12														.45				1.32	
Alpena.	Lake.			.31				.02	.01					T.	.25	.01		T.		.02					.04	.14	.20		.11	T.	.01	.11	1.23	
Ann Arbor.	Huron.	T.		.27	.01			.02	T.						.11	.49	.03									.02	.02		.22	.06			1.25	
Arbela.	Saginaw.			.97				.37		.16					.30														.22				2.02	
Ball Mountain.	Clinton.		T.	.04				1.06		.76					.08			T.		T.									1.02				2.96	
Baraga.	Lake.														.38														.85	.55			3.51	
Battle Creek.	Kalamazoo.	.20	.08		.45				T.																				.20			.10	0.73	
Bay City.	Saginaw.		.02		.15			.02		.04				T.		.20													.10	.24		T.	0.46	
Benzonia.	Betscy's.	.47		T.	.05			.11	.19		.12	T.	1.99	.44		.16					T.					.30	.10		.02	.10	.24		T.	3.97
Bergland.	Ontonagon.	.05		.18	T.			.12							.10	.08														.08			3.02	
Berlin.	Clinton.	T.	.03		.03					.02	.08				.45	.95													1.07	.55			2.02	
Big Rapids.	Muskegon.														.90	.02	.02													.55		.15	.45	2.70
Blaney.	Manistique.	.11	T.		.02					.10	.02				.07	T.														1.15	1.43			3.69
Bloomington.	Lake.			.34						.16																			.14	T.	.50		T.	1.17
Cadillac.	Manistee.	T.		.56			T.	T.	.08		.33			.30	1.34						T.					.27	.08		.22		.15	.08	1.60	
Calumet.	Lake.									.10	.08				.20	.08	.08												.50	1.20	.30		3.47	
Cassopolis.	St. Joseph.	.12	.06	.19	.03			.04	.08	.01				.07	.24	T.													.58	.59		.23	2.29	
Charlevoix.	Lake.			.15				.24	.01	.30					.31	.64	.01												.15		.03	.04	2.01	
Charlotte.	Kalamazoo.																																2.17	
Chatham.	Lake.																																2.80	
Cheboygan.	Cheboygan.				T.	T.				.30	T.	T.			.50		.30												.05	1.65		.25	1.11	
Clinton.	Raisin.			.11	.10					T.	.07				.60	1.48													.24	.10	.14		1.11	
Coldwater.	St. Joseph.			.24																									.02	1.80	.80		4.94	
Concord.	Kalamazoo.	T.	T.	.32	T.					T.					T.														.70	T.	.40		1.42	
Croton.	Muskegon.		.12		.77					T.				.04	T.															.22	.62		2.09	
Deer Park.	Lake.				.75																									.90				



TABLE 2.—Daily precipitation for August, 1909. District No. 4—Continued.

Stations.	River basins.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Michigan—Cont'd.																																		
Ironwood.....	Lake.....	.02		T.	.47				.08		.11	.35	.04	T.	.23									T.	.07	.23				.04		.06		2.70
Ishpeming.....	Escanaba.....	T.			.25				.20	T.		.20	.05		T.	.70	T.							T.	.50	.07	.20				.05	T.	.02	2.17
Isle Royale.....	Lake.....			.45				.12	.14					.03	T.	.15					T.				.50	.04	.32	T.			.06		T.	1.47
Ivanhoe.....	Manistee.....			.12								.16	.02			.15					T.									.06			1.45	
Jeddo.....	Grand.....		.48	.20	.14	.03			.05		.05	.02			.25						T.							.03	T.	.76	.12		2.10	
Kalamazoo.....	St. Clair.....				.05								.07			.18				.02		.13								.48			1.44	
Lansing.....	Kalamazoo.....	.06		.21					T.		T.				2.10	.07	.18					.23							1.60				3.97	
Lapeer.....	Grand.....	.08	.33	T.	.25				.20		.03	.07		.07		.02										.03			.06	.66			2.03	
Ludington.....	Saginaw.....	.15		.24	.03				.13			.19				.65	.05				T.								.41				1.85	
Mackinac Island.....	Pere Marquette.....				.86																.14							.96					1.96	
Mackinaw.....	Lake.....	.10	.50	.25				.01							.50	1.50										.01			.10		1.25		4.22	
Mancelona.....	do.....				T.			T.	T.		T.				T.	1.00									T.	T.			.90		T.	.15	2.05	
Manistee.....	do.....										.10				.15	T.										T.	T.			1.15		T.	1.40	
Maple Ridge.....	Manistee.....					.10																												
Marquette.....	Lake.....					.10		.17	.23		.34	.13			.22						.01			.15	.13				.17				1.64	
Menominee.....	do.....	T.		.08	.09				.20		.21				.25	.11							T.	.16	.06	.03				.08	T.	.04	.02	1.34
Midland.....	Menominee.....			.15								.26			.05										T.			.34					0.80	
Montague.....	Saginaw.....																																	
Morenci.....	White.....																																	
Mt. Clemens.....	Maumee.....				.04							.06		.38	.86												.03	.04		.35			1.76	
Mt. Pleasant.....	Clinton.....		.04	T.				.50		T.	.25				.30						.08								.56	T.			1.73	
Muskegon.....	Saginaw.....			.18							.70				.10																		0.98	
Newberry.....	Muskegon.....			T.							T.				T.							.14						.45					0.59	
Old Mission.....	Taquamenon.....																																	
Olivet.....	Lake.....			.28							.22	.02		.45	.01										.10		.10		1.08				2.38	
Omer.....	Kalamazoo.....	.68	.36		.13			.14			.12			.42	.62	T.					.01							1.54	.55				4.57	
Onaway.....	Lake.....			.85							.30																						0.75	
Ovid.....	Cheboygan.....			.45	.04	.03		T.		.15		.21	T.		T.	.04	.05								.30		.70		.85		.15		3.15	
Owosso.....	Grand.....	.12	.02	.26				.09		.15		.13		.03	.30						T.								.28				1.46	
Petoskey.....	Saginaw.....			.02						.12		.13		.02	.18											.20		.20		.70		.20	1.64	
Plymouth.....	Lake.....			1.00												.26													1.40				2.71	
Pontiac.....	Rouge.....	T.	.11		.05			.03		T.	.40		T.	.02	.07						T.	.05								.93	T.		1.66	
Port Austin.....	Clinton.....			.32											.41																		0.91	
Port Huron.....	Lake.....			.02	.18					.45		.02	.03		.19	.67	T.	T.			.03			.10					.64			T.	2.23	
Powers.....	St. Clair.....										.30				.40																		0.80	
Reed City.....	Lake.....																																1.20	
Roscommon.....	Muskegon.....	T.					T.				.10	.20		.10	.20	.10													.20	.30			1.45	
Saginaw.....	Au Sable.....			.10	.55							.13		.10	.10	T.														.20		T.	1.18	
Saginaw, W. S.....	Saginaw.....		.08		.63					T.		.01	.12		.10	.05					.05								.23			T.	1.27	
St. Ignace.....	do.....			.10										.10	.35	.05																	1.15	
St. James.....	do.....							.40		.24				.51														.12		.60		.15	1.42	
St. Johns.....	Grand.....													.75	.80	.08													.75	.52			2.90	
St. Joseph.....	St. Joseph.....							.30								.48														.10		.30	1.73	
Sandusky.....	Lake.....			.55				.55		.05	.06		.09								.40				.05		.05		.08	1.03			3.57	
Saranac.....	Grand.....			.90	.36			.01						.86										.03	.04			.05		.08	1.03			3.49
Sault Ste Marie.....	St. Mary's.....			.29				.60		.20				.65							T.					.04				1.74		.42	.10	2.85
South Haven.....	Lake.....																																	
Stanton.....	Grand.....																																	
Thomaston.....	Lake.....	.72		T.				.27	.90	1.10	T.				1.02											.59								4.60
Thornville.....	Saginaw.....	.68		.09							.15				.04	1.02						.12								.95		T.	T.	3.05
Traverse City.....	Lake.....		.50													.50																	2.00	
Vassar.....	Saginaw.....			.25											.25																		1.05	
Victoria.....	Ontonagon.....	.12		T.	.05		.54	.12	T.	.04	1.05	.02			.18															.33	.01	.05	.04	2.72
Wasipi.....	St. Joseph.....	.12		.03	.33					.42	.02			1.30	1.20															.55	.79			4.86
Watersmeet.....	Ontonagon.....	.34		.01	.07		.14		.10		.13	.01			2.50	.05														.54	T.	.05	.05	5.45
Webberville.....	Grand.....		.33	1.76	.22							.06	.13		T.						.20									.80				3.60
West Branch.....	Lake.....			.55																													T.	0.55
Wetmore.....	do.....							.70																										2.51
Whitefish Point.....	do.....			1.05				.01	T.						.20									.11		.03	.01	.07		.68		.45	.10	2.71
Woodlawn.....	Au Sable.....			.54				.12	.12		.12																							

TABLE 2.—Daily precipitation for August, 1909. District No. 4—Continued.

Stations.	River basins.	Day of month.																															Total			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
New York—Cont'd.																																				
Benson Mines.....	St. Lawrence.....									.87	.03					.62	.41			1.75	.28									.31			2.24			
Blue Mountain Lake.....	do.....					T.																									.32	.37	4.3	5.12		
Brockport.....	Ontario.....															.63	2.18	.12	.05		.02										.03	.11		3.14		
Buffalo.....	Erie.....									.14					T.	.05	.67	.04			.06										.45	.06	.22	T.	1.69	
Canton.....	St. Lawrence.....				.01					T.	T.					.47	.29	.03	.02	T.	.03			T.	T.						.53	.06	1.04	.11	2.59	
Cape Vincent.....	do.....									.04						1.84	.03				.20													3.36		
Carvers Falls.....	Champlain.....				.48									.20				1.10	.06		.39													2.23		
Chazy.....	do.....									T.						1.15	.18	.60		1.25	.10										.70	.40		4.38		
Dannemora.....	do.....					T.	T.				T.					.72	.10	.50	.10	.35	.05			T.	T.						.49	T.	.25	T.	2.56	
Elba.....	Ontario.....															.29	1.15	T.														T.	.35		1.79	
Faust.....	St. Lawrence.....					T.										.79	.06	.27	.24	.01				T.								.01	.27		1.65	
Fayetteville.....	Oswego.....															.56	.22	.10	.16	.03	.23										.03	.12		1.45		
Gabriela.....	Champlain.....									T.	.08					1.01		.24	.12	.10				.05						1.70		1.67		3.97		
Harkness.....	do.....				.02	.04				T.	.01					.46	.25	.62		.42											.54	.20		2.56		
Hemlock Lake.....	Genesee.....									T.						.23	.60		T.		.25										.27	T.		1.35		
Hunt.....	do.....															.75		.63		.50											.48	.11	.45	2.32		
Ithaca.....	Oswego.....									T.						.35	.40	.11	.12	.27											.31	T.	.07	1.63		
Keene Valley.....	Champlain.....		.05			.08					.07			T.		.20	1.61	.06	.07	.01	.59	.05	.02								.18	.10	.05		2.05	
Keuka Park.....	Oswego.....									T.						.46	.21	.30	.18		.65										.22	.05		2.43		
King Ferry.....	do.....															.04	.21	.30	.18												.20	.10		2.10		
Lake George.....	Champlain.....				T.	.19	.05			T.				.18		.04	1.25	.94	1.02	.11	.02											.03	T.		3.83	
Lake Placid Club.....	do.....					.06			.01	.63	.05	T.		T.		.16	.44	.08	.06		.06				.05	.02	T.					.15	T.	.09		2.67
Le Roy.....	Genesee.....			.10		.03				T.						.04	.48	.05														.30	T.	.30		0.90
Lockport.....	Ontario.....									T.						.16	.44	.08	.06		.06										.03	T.	.30		2.53	
Lowville.....	do.....															1.65		.28													.35		.09		1.57	
Lyndonville.....	do.....															* 1.48																		1.57		
Moira.....	St. Lawrence.....									.03	.08					T.	.56	.05	.30	.01	T.										.35		.71		2.14	
Nehasane.....	Ontario.....				.14					.30		.03		T.		.03	.96	T.	.17	.10	.09										.63		.46		2.31	
North Hammond.....	St. Lawrence.....																																			
North Lake.....	Ontario.....																																			
Ogdensburg.....	St. Lawrence.....															T.	.90	T.	.05		T.			.07							.42		1.00	.03	2.47	
Old Forge.....	Ontario.....															.15	.88	.32	.38	.05	.01										.24		.29		2.32	
Oswego.....	do.....									T.						.76	.97	.03	.04	.03	T.										.01	.02	.14	T.	2.00	
Otto.....	Erie.....																																			
Palermo.....	Oswego.....									.03						* 1.74	T.			T.	.50													1.77		
Perry.....	do.....															.38	.35	.61			.50										.75		.13		2.72	
Philadelphia.....	St. Lawrence.....									.04				T.		.10	.91	.01	.03	.03	.07											.08		.81		2.08
Plattsburg.....	Champlain.....						.20				.02					.70	.30	.40	.10	.30	.10											.05		.02		2.19
Potsdam.....	St. Lawrence.....																																			
Raquette Lake.....	do.....									T.						* .75	.11	.52	.16	.19														1.79		
Rochester.....	Genesee.....															.46	.93	.09	T.		.02											.04		.07	.09	1.70
Romulus.....	Oswego.....																																			
Scottsville.....	Genesee.....															.53	.97			.23						.11							.10		1.94	
Shortsville.....	Oswego.....									T.						.74	1.41	.01	.06		.07	.06									.31		T.	T.	2.39	
Skaneateles.....	do.....									T.						.31	1.00	.10	.07	.02	.09	T.									.07	.13		T.	.05	1.84
Syracuse.....	do.....															.49	1.05	.03	.05	T.	.26										.03		.05	T.	1.96	
Ticonderoga.....	Champlain.....					.25										1.00	.75	1.01	T.													T.			3.01	
Trudeau.....	do.....																																			
Volusia.....	Erie.....			.30												.72	T.	1.64	.08		.10											1.03	T.	.41		4.28
Watertown.....	Ontario.....									.05				T.		.33	.84		.20	.08	.06										.14		.59		2.29	
Wedgwood.....	Oswego.....															.10	.60	.80	.26		.14										.62		.06	.11	2.69	
Westfield.....	Erie.....			T.												.29	T.	2.17	.19		.29										.99	T.	.91		4.84	
Youngstown.....	Ontario.....															.06	2.81	.30		T.												.26			3.43	
Vermont.																																				
Burlington.....	Champlain.....					.07	.04			.04	.17					.02	.45	.18	.03	.02	.38											.22			2.83	
Cornwall.....	do.....				.25					T.	.15					1.35	.50	.10	.14	.30											.24		.25		3.28	
Enosburg Falls.....	do.....				.01	.06				.20	.23			T.		.17	.08	.20	.03	.65	.01	.56									.74		.29	T.	3.26	
Northfield.....	do.....				.65	.12				T.	.06					.01	.56	.34	.06	.13	.11										.36		.13		2.53	
Wells.....	do.....				.71					T.				.25		.46	1.24	.22	.11	.12	.08										.22		.27		3.68	



TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 4, Lake Region.

Date.	Duluth, Minn.		Wisconsin.								Chicago, Ill.		Fort Wayne, Ind.		Michigan.															
			Florence.		Green Bay.		Milwaukee.		Alpena.						Battle Creek.		Cadillac.		Detroit.		Escanaba.		Ewen.		Houghton.		Marquette.			
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
1...	61	51	70	60	78	64	73	66	81	70	90	57	74	62	85	62	79	72	82	65	76	62	.....	.....	70	58	72	57		
2...	66	53	80	50	81	63	75	64	79	72	91	62	76	60	79	60	86	60	76	65	74	65	.....	.....	80	59	78	64		
3...	78	61	81	57	84	63	77	68	81	72	90	65	74	64	85	64	91	56	80	68	73	66	.....	.....	82	65	81	64		
4...	82	58	81	60	81	66	83	69	86	73	89	64	71	62	82	65	84	64	79	67	80	63	.....	.....	79	64	74	64		
5...	82	60	88	58	90	63	82	67	80	73	91	65	80	60	83	62	90	58	81	65	77	60	.....	.....	85	60	82	66		
6...	82	59	88	59	94	64	81	68	84	73	88	59	88	60	85	59	92	59	83	62	81	67	.....	.....	88	63	92	66		
7...	79	61	89	65	92	66	82	70	84	74	92	58	83	62	89	62	95	60	87	68	85	66	.....	.....	86	66	81	68		
8...	68	59	77	67	91	71	92	70	93	73	95	60	92	64	90	60	90	60	90	72	76	66	.....	.....	76	59	77	63		
9...	72	58	77	57	79	67	82	66	81	72	91	65	82	63	86	70	84	65	84	66	80	63	.....	.....	78	58	73	61		
10...	65	56	73	48	75	60	76	68	75	71	89	67	68	53	79	60	80	54	75	57	72	59	.....	.....	66	57	65	56		
11...	60	55	61	52	66	62	71	65	79	68	86	57	73	50	75	55	67	57	72	57	64	57	.....	.....	61	57	60	56		
12...	59	54	69	55	74	62	72	68	78	71	85	65	71	58	79	60	77	55	75	57	70	62	.....	.....	68	60	64	59		
13...	58	54	75	57	76	64	77	68	77	70	87	68	77	53	83	61	82	56	80	65	73	62	.....	.....	75	59	67	60		
14...	80	57	81	62	79	68	77	71	89	70	77	65	77	54	78	65	81	63	82	66	70	66	.....	.....	79	62	79	64		
15...	84	63	84	62	89	68	89	68	85	72	90	71	85	65	85	68	85	69	89	64	79	64	.....	.....	80	66	76	63		
16...	71	59	72	58	78	64	79	67	84	71	90	63	78	62	85	63	80	64	80	60	74	62	.....	.....	68	59	66	62		
17...	82	61	74	50	75	60	80	64	77	66	80	57	82	60	81	56	83	55	78	62	81	57	.....	.....	77	62	78	62		
18...	79	62	.....	.....	84	69	80	64	77	66	80	57	82	60	81	56	83	55	78	62	81	57	.....	.....	69	54	71	54		
19...	73	51	79	51	86	59	85	66	82	69	88	60	84	55	85	59	85	57	84	61	80	55	.....	.....	64	51	60	49		
20...	65	50	67	44	70	53	71	60	75	66	81	61	67	49	77	57	74	51	74	57	66	47	.....	.....	64	51	60	49		
21...	82	58	78	41	79	51	71	59	72	65	80	50	69	42	78	58	80	40	69	54	71	45	.....	.....	85	50	79	51		
22...	78	61	72	58	82	62	81	60	81	63	84	46	84	57	81	51	79	56	76	56	72	61	.....	.....	75	55	73	60		
23...	70	59	79	61	82	61	84	65	86	67	89	50	76	63	86	54	88	61	82	60	72	57	.....	.....	76	52	76	53		
24...	76	64	90	61	94	70	90	68	91	70	93	55	93	65	91	61	92	66	87	67	82	68	.....	.....	78	66	77	63		
25...	77	63	85	59	93	71	84	73	85	72	92	61	90	70	91	66	91	66	92	68	79	64	.....	.....	71	61	74	64		
26...	73	59	81	58	90	64	79	70	80	71	94	68	83	62	90	69	88	65	89	71	79	58	.....	.....	75	60	74	61		
27...	81	61	81	59	81	68	76	66	83	71	92	68	75	55	87	56	85	60	85	70	77	66	.....	.....	90	59	86	63		
28...	69	51	73	58	81	61	81	64	87	68	95	66	82	58	88	65	84	64	85	66	79	57	.....	.....	75	58	75	58		
29...	61	48	.....	.....	67	50	69	55	68	60	81	62	65	46	74	59	77	53	76	57	63	44	.....	.....	58	47	58	44		
30...	72	52	65	40	71	49	67	60	69	60	77	54	63	42	74	57	74	38	68	50	64	41	.....	.....	62	44	59	44		
31...	56	41	58	45	63	46	74	49	76	59	84	50	63	48	75	53	67	48	77	53	64	40	.....	.....	56	45	58	47		
Mns	72.4	56.7	76.8 <sup>b</sup>	55.6 <sup>c</sup>	80.8	61.9	78.5	65.3	80.7	69.0	87.4	60.5	77.4	57.5	82.7	60.5	82.7	58.4 <sup>a</sup>	80.5	62.5	74.4	59.0	.....	.....	74.4	57.8	72.7	59.0		

Date.	Michigan.						Ohio.						New York.						Vermont.										
	Muskegon.		Saginaw, W. S.		Sault Ste. Marie.		Cleveland.		Lima.		Sandusky.		Toledo.		Erie, Pa.		Buffalo.		Canton.		Rochester.		Syracuse.		Burlington.		Northfield.		
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	79	63	84	58	78	57	77	62	88	61	78	67	82	64	75	64	77	62	75	47	74	62	78	58	75	53	74	48	
2...	81	62	80	59	79	56	76	64	87	62	77	69	77	68	76	62	82	60	78	51	78	60	79	57	77	49	78	40	
3...	84	61	85	61	82	56	82	66	84	63	82	67	86	67	75	68	82	68	83	58	82	64	82	66	83	52	82	44	
4...	84	69	79	65	74	58	81	62	76	69	82	65	83	66	80	62	84	67	83	56	84	62	80	60	80	60	79	49	
5...	81	65	82	62	86	55	75	61	87	68	81	67	84	66	79	65	79	66	82	62	82	59	81	57	67	60	65	56	
6...	84	64	90	59	90	56	75	65	85	62	79	69	81	62	78	65	84	63	82	61	85	58	82	59	77	57	78	56	
7...	85	62	93	63	81	60	80	69	89	61	82	69	86	66	83	66	88	67	88	60	87	63	87	61	87	58	84	53	
8...	87	68	93	62	83	62	85	68	91	60	86	72	92	68	85	67	85	70	90	68	91	64	92	63	92	65	89	58	
9...	84	67	85	71	73	58	79	69	87	66	84	72	86	71	79	72	76	68	83	62	82	68	81	69	83	65	81	60	
10...	79	60	77	56	71	54	72	65	82	69	76	66	77	59	72	60	71	62	70	55	72	63	70	59	69	53	65	52	
11...	74	59	74	57	74	54	73	59	81	56	74	61	77	57	70	56	75	55	76	47	70	57	73	53	72	50	72	44	
12...	79	59	78	53	74	58	73	60	77	62	77	60	78	63	74	62	76	57	81	48	80	58	82	54	76	47	74	40	
13...	85	61	84	68	80	53	74	65	83	63	78	65	79	66	76	64	82	67	81	56	78	63	80	61	76	61	75	49	
14...	82	62	84	60	75	59	81	67	86	64	80	71	78	63	85	67	84	66	83	56	85	65	81	62	80	64	76	52	
15...	81	66	89	70	74	61	83	70	86	64	86	71	87	71	79	67	72	68	77	58	72	63	70	60	79	57	75	48	
16...	78	64	80	63	69	60	76	64	86</																				

Climatological Data for August, 1909.  
DISTRICT No. 5, UPPER MISSISSIPPI VALLEY.

GEORGE M. CHAPPEL, District Editor.

TEMPERATURE.

The most striking features of the climatic conditions for August, 1909, were the uniformly high temperatures, the excessive precipitation in the northern, and the severe drought and high percentage of sunshine that prevailed over the southern portion of the district.

The temperatures were considerably above the normal in all sections, and were high during the larger part of the month, the 29th and 30th being the only cool days. The maximum temperatures were 90° or above on twenty days over the southern portion of the district and on five to ten days as far north as southern Minnesota. They were 100° or above at several stations in Missouri, Iowa, Illinois, and southern Wisconsin, the highest being 105° at Mascoutah, St. Clair County, Ill., on the 28th. In southern Iowa, Missouri, and southern Illinois, there were only a few days on which the maximum temperature was below 90°. On most of the days it ranged from 90° to 100°, and exceeded the latter value at a number of stations on several days. The minimum temperatures were also high in all sections until the 29th, when a cool wave passed over the district, which caused light frosts on low ground as far south as southern Iowa and light to heavy frosts over North Dakota, Minnesota, Wisconsin, and northern Illinois, with a minimum temperature of 27° at McKinney, Ward County, N. Dak. The cool wave continued on the 30th, but the temperature was again high on the 31st with maximum temperatures above 90° in southern sections.

The monthly mean temperature for the district, as shown by the records of 294 stations, was 73.2°, which is 3.8° above the normal. The highest monthly mean temperature was 82.8° at Chester, Randolph County, Ill.; and the lowest monthly mean temperature was 61.6° at Portal, Ward County, N. Dak. The highest temperature reported was 105° at Mascoutah, St. Clair County, Ill., on the 28th, and the lowest, 27° at McKinney, Ward County, N. Dak., on the 29th. The average monthly maximum was 94°, and the average monthly minimum was 44°. The greatest daily range was 55° at McKinney, Ward County, N. Dak. The average of the greatest daily ranges was 36°.

PRECIPITATION.

The rainfall was very unevenly distributed. Over southern Iowa, Missouri, and central and southern Illinois the amounts were generally less than half an inch, and, in a few places, there was only a trace of rain during the entire month. In Iowa there was a deficiency of rainfall in all but the northeast and extreme north-central counties; yet at least a trace of rain fell in some part of the State on every day of the month except the 19th and 20th. During the second decade, showers were frequent and the rainfall heavy over the northeast and north-central counties; but over the remainder of the State the showers were extremely local and the rainfall generally very light. The monthly rainfall ranged from a trace in Jefferson County to 8.21 inches in Chickasaw County. Droughty conditions prevailed during the entire month over the southern half of the State, and considerable damage was done to growing crops. The ground was dry and hard and the surface water supply was scarce. In Missouri, there was a total absence of well developed lows during August. The depressions that crossed or passed near the State were shallow and gave little or no rain. Drought prevailed in all parts of the district during the entire month, except over limited areas where local showers temporarily relieved the conditions, and at several stations there was

no rain at all. At the close of the month the ground was hard and parched, and no plowing had been done. The corn crop had received serious damage. "The forests, untouched by the coloring agent of autumn, were beginning to drop their leaves, which were curled up and parched."

In Minnesota the rainfall was very unevenly distributed. It ranged from nearly 10.50 inches at Leech Lake Dam, in Cass County, to about 1 inch in northern Kandiyohi County. At Detroit, in Becker County, and at St. Charles, in Winona County, the rainfall was nearly 10 inches; in central St. Louis County, about 8 inches; and in Rice, Dodge, Mower, and Freeborn counties, from 8 to 8.50 inches. In a number of southwestern counties it was less than 2 inches. There was an excess of over 6 inches in Cass and southwestern Winona County, and a deficiency of over 2 inches in the southwestern and extreme northwestern counties. The precipitation was, however, fairly well distributed through the month. Showers were more or less general on the 1st and 3d, from the 7th to the 13th, on the 17th, from the 22d to the 25th, and on the 28th.

In Wisconsin the distribution was more uneven than usual for a summer month. The total rainfall ranged from 1.5 inches, in the extreme southwest corner of the State, to nearly 10 inches in the Rock River Valley and at La Crosse on the Mississippi River. The rainfall at Delavan, in Walworth County, during the 13th and 14th, 5.92 inches, was one of the heaviest that has ever been reported from that station.

In North Dakota, the precipitation was somewhat unevenly distributed geographically, but was quite uniform throughout the month. The greater part of the precipitation, however, occurred during the first seventeen days. The 22d to the 25th, inclusive, were generally rainy. The heaviest precipitation occurred in Walsh County, and the least in Ward County.

The average rainfall for that portion of the State in District No. 5, was nearly one-half inch below the normal.

In Illinois the rainfall was nearly normal, or excessive in a few instances, over the northern tier of counties; but was deficient in the central and almost negligible in the southern counties. At Cairo there was only 0.01 inch during the entire month, and it was the driest month on record at that station.

Following are some excessive amounts of rainfall in one hour or less, viz: At Devils Lake, N. Dak., on the 6th, 1.07 inches fell in forty-five minutes, and on the 23d, 0.68 inch fell in fifteen minutes. At St. Paul, Minn., 0.84 inch fell in thirty-five minutes on the 13th. At La Crosse, Wis., 1.56 inches fell in one hour on the 11th. During the night of the 13-14th, 1.93 inches fell in one hour, and 2.45 inches in one hour and forty minutes. At Madison, Wis., on the 9th, 0.45 inch fell in twenty-five minutes. At Springfield, Ill., on the 15th, 0.43 inch fell in ten minutes, and on the 25th, 0.75 inch fell in forty minutes. At Charles City, Iowa, 1.07 inches fell in thirty minutes on the 12th, and 1.01 inches in forty minutes on the 15th.

Excessive amounts for twenty-four hours may be found in the climatological tables. There was an unusual amount of sunshine over the southern sections of the district. The average number of clear days in Missouri was 23, with 6.5 partly cloudy, and only 1.5 cloudy days. About the same ratio of clear, partly cloudy, and cloudy days was maintained over southern Iowa and southern Illinois.

There were a few local wind and hail storms; the most noticeable one passed over Winnebago County, Ill., on the 1st, doing considerable damage.



The average precipitation for the district, as shown by the records of 311 stations, was 3 inches, which is 0.20 inch below the normal. The greatest amount, 10.43 inches, occurred at Leech Lake Dam, Cass County, Minn.; and the least, a trace, at Donnybrook, Ward County, N. Dak., and at Fairfield, Jef-

erson County, Iowa. The greatest amount in twenty-four hours, 5.92 inches, occurred at Delavan, Walworth County, Wis. Measurable precipitation occurred on an average of six days. The average number of clear days was 18; partly cloudy, 9; cloudy, 4. Southwest winds prevailed.

TABLE 1.—Climatological data for August, 1909. District No. 5, Upper Mississippi Valley.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
North Dakota.																				
Amenia.	Cass.	954	11	70.8	+ 4.7	95	14	39	29	42	2.89	- 0.33	1.30	0.0	5	19	3	9	se.	C. E. Wood.
Bottineau.	Bottineau.	1,638	13	66.6	+ 3.2	96	20	36	29	47	1.38	- 0.18	1.06	0.0	6	16	4	11	nw.	J. A. Kamp.
Cando.	Towner.	1,458	7																	E. T. Judd.
Crosby.	Williams.		12	67.6		98	20	31	28	50	0.85		0.80	0.0	4	27	3	1	nw.	B. Lancaster.
Devils Lake.	Ramsey.	1,482	3	67.4	+ 2.3	90	2	39	31	36	3.60	+ 0.86	1.30	0.0	10	14	13	4	se.	U. S. Weather Bureau.
Donnybrook.	Ward.	1,760	9	68.8	+ 4.4	102	13	29	31	53	T.	- 2.88	T.	0.0	0				se.	F. S. Gieselman.
Dunsmith.	Rolette.		11	68.2	+ 4.6	100	20	35	28	55	1.22	- 1.08	0.48	0.0	3				e.	L. H. Trowbridge.
Edmore.	Ramsey.	1,524	3	68.3		94	2	33	29	57	3.83		1.10	0.0	8	16	14	1	n.	H. R. Aslakson.
Forman.	Sargent.	1,249	14	75.4	+ 8.1	97	2	37	29	43	0.95	- 2.33	0.50	0.0	4	15	14	2	nw.	A. Maltby.
Grafton.	Walsh.	827	11	67.4	+ 3.1	93	22	37	29	43	5.70	+ 3.28	1.36	0.0	8	16	13	2	s.	H. Lamoure.
Granville.	McHenry.	1,504	2	68.8		96	13	31	29	52	1.52		0.50	0.0	4	18	13	0	se.	W. A. Christiansen.
Hamilton.	Pembina.	824	11																	D. Wallace.
Hannah.	Cavalier.	1,568	3																	J. Moffatt.
Hansboro.	Towner.		1	67.0		95	14	33	29	48	0.93		0.54	0.0	3	22	7	2	se.	Geo. Dale.
Hillsboro.	Trail.	901	3	70.6		93	2	40	29	39	4.76		0.85	0.0	9	23	4	4	nw.	M. H. Norman.
Lakota.	Nelson.	1,519	2	65.6		92	2	35	29	38	3.16		0.85	0.0	9	13	16	2	se.	C. R. Pettes.
Langdon.	Cavalier.	1,615	13	66.1		92	21	31	29	43	2.66		0.56	0.0	7	17	0	14	nw.	J. Woolner.
Larimore.	Grand Forks.	1,134	13	68.7	+ 4.7	95	20	38	29	41	3.28	+ 0.26	1.32	0.0	8	10	12	9	s.	M. Naylor.
Lisbon.	Ransom.	1,091	4	70.6		93	3	33	29	39	2.91		0.80	0.0	11	20	2	9	ne.	H. K. Adams.
McKinney.	Ward.	1,640	14	65.7	+ 2.1	100	20	27	29	55	0.26	- 1.12	0.26	0.0	1	19	11	1	se.	M. P. Swenson.
Manfred.	Wells.	1,605	7	68.5		95	13	32	29	46	2.19		1.30	0.0	9	17	11	3	se.	P. B. Anderson.
Mayville.	Trail.	975	13																	M. N. Pope.
Milnor.	Sargent.		1	66.2		90	1	36	29	38	1.60		1.10	0.0	2	18	4	9	se.	O. B. Jorgenson.
Minot.	Ward.	1,557	10	69.6	+ 3.8	98	13	32	29	51	0.55	- 1.81	0.18	0.0	9	24	3	4	e.	J. J. Bates.
Minto.	Walsh.	820	15	69.0	+ 4.4	93	2	37	29	44	2.65	+ 0.11	1.10	0.0	6	19	5	7	se.	S. S. Marsh.
Oriska.	Barnes.	1,270	3																	W. E. Williams.
Park River.	Walsh.	998	5																	A. Heyward.
Pembina.	Pembina.	789	10	67.2	+ 4.4	91	14	33	29	37	1.43	- 1.18	0.54	0.0	7	20	2	9	s.	F. C. Warner.
Portal.	Ward.	1,954	14	61.6	- 2.5	90	6	31	22	48	0.73	- 1.09	0.30	0.0	3	16	0	15	nw.	M. S. Davis.
Power.	Richland.	1,020	16	70.2	+ 3.3	92	2	34	29	51	3.93	+ 1.40	0.94	0.0	11	16	10	5	se.	J. A. Power.
Pratt.	McHenry.		4	66.5		99	20	29	31	51	1.68		1.42	0.0	3	24	7	0	nw.	C. H. Butts.
Towner.	do.	1,475	2	68.8		97	20	32	29	47	0.50		0.32	0.0	4	21	10	0	sw.	B. Bagley.
University.	Grand Forks.	830	17	68.6	+ 3.7	93	2	37	29	39	2.59	+ 0.07	0.78	0.0	11	18	9	4	n.	G. W. Stewart.
Wahpeton.	Richland.	962	17			101	1	34	29	48	3.91		1.75	0.0	5	16	14	1	s.	E. G. Burch.
Walhalla.	Pembina.	966	4	69.0		98	20	34	31	47	0.63		0.58	0.0	2	24	2	5	se.	E. L. Howard.
Westhope.	Bottineau.	2	68.0			96	20	32	29	51	0.82	- 1.02	0.24	0.0	7	12	19	0	se.	J. D. Currie.
Willow City.	do.	1,471	15	66.9	+ 2.8	96	20	32	29	51	0.82	- 1.02	0.24	0.0	7	12	19	0	se.	M. A. Ostby.
Minnesota.																				
Albert Lea.	Freeborn.	1,229	19	75.0	+ 6.1	98	1	47	29	41	8.24	+ 4.56	2.30	0.0	10	15	15	1	se.	Edward Carey.
Alexandria.	Douglas.	1,391	15	72.6	+ 5.6	96	27	45	29	34	1.38	- 2.25	0.72	0.0	7	17	2	12	nw.	P. O. Unumb.
Angus.	Polk.	870	7	67.6		92	2	35	29	40	5.53		1.30	0.0	10	21	6	4	s.	F. A. Wilson.
Bagley.	Clearwater.		3	67.5		89	27	37	29	38	5.91		2.38	0.0	9	13	12	6	se.	Edward T. Teitsworth.
Baudette.	Beltrami.		16	66.4		91	27	40	20	37	2.88		0.78	0.0	10	19	4	8	sw.	Franz W. Schmidt.
Beardsley.	Big Stone.	1,060	16	73.2	+ 5.5	96	27	36	29	40	6.67	+ 3.13	3.51	0.0	7	8	20	3	se.	Roy A. Smith.
Beaulieu.	Mahnomen.	1,200	7																	Dr. L. A. Parkinson.
Bird Island.	Renville.	1,639	19	73.4	+ 4.6	92	10	42	29	35	4.07	+ 0.63	3.32	0.0	7	20	1	10	sw.	Dr. F. L. Puffer.
Caledonia.	Houston.	1,179	16	72.5	+ 3.9	90	1	50	29	25	6.21	+ 2.56	3.58	0.0	9	15	11	5	se.	W. D. Bedien.
Campbell.	Wilkin.	984		71.1		95	27	36	29	40	3.65		1.92	0.0	11	17	2	12	se.	J. T. Neiseca.
Cass Lake.	Cass.	1,300	3																	C. W. Burns.
Collegeville.	Stearns.	1,282	16	72.3	+ 5.7	90	2	46	31	35	2.58	- 0.39	1.16	0.0	6	16	10	5	nw.	Fridolin Tennbreull.
Crookston.	Polk.	863	19	69.2	+ 3.7	92	2	39	31	31	3.38	- 0.07	0.65	0.0	12	19	3	9	s.	A. G. Anderson.
Detroit.	Becker.	1,364	13	69.8	+ 5.3	92	2	38	29	40	9.89	+ 6.14	5.40	0.0	8	19	10	2	se.	G. W. Peoples.
Fairmont.	Mar tin.	753	22	73.8	+ 4.7	90	27	43	29	27	3.52	+ 0.60	1.80	0.0	6	20	10	1	s.	W. F. Wheeland.
Fairbault.	Rice.	1,003	12	72.0	+ 3.2	91	1	43	29	34	8.59	+ 4.90	3.71	0.0	11	18	7	6	se.	A. R. T. Wylie.
Farmington.	Dakota.	902	21	75.0	+ 4.6	93	2	45	29	29	3.54	+ 0.08	1.36	0.0	9	19	3	9	s.	E. D. Akin.
Fergus Falls.	Ottertail.	1,210	17	72.4	+ 4.7	92	27	45	29	31	4.66	+ 1.82	1.45	0.0	13	15	13	3	se.	Chas. E. Kinsinger.
Fort Ripley.	Morrison.	1,135	3	70.4		91	5	42	29	42	3.17		1.32	0.0	7	20	1	10	s.	J. J. Tucker.
Fosston.	Polk.	1,288		67.8		88	1	40	29	35	4.19		2.64	0.0	4				sw.	O. N. Hem.
Glencoe.	McLeod.	1,006	13	73.6	+ 5.8	91	15	45	29	34	2.63	- 0.65	0.98	0.0	6	19	12	0	sw.	C. G. Selvig.
Grand Meadow.	Mower.	1,338	22	73.8	+ 5.4	96	1	45	29	33	8.34	+ 5.15	3.85	0.0	11	16	10	5	se.	C. F. Greening.
Hallock.	Kitaon.	815	10	67.8	+ 3.8	93	21	34	31	44	2.12	- 1.46	0.62	0.0	9	19	6	6	n.	D. A. Robertson.
Halstad.	Norman.	870	3	68.9		93	2	38	29	39	3.57		1.38	0.0	11	18	5	8	sw.	A. G. Holstrom.
Hinckley.	Pine.	1,050	4	71.8		88	27	45	31	29	7.68		3.96	0.0	9	12	13	5	e.	W. R. Newman.
International Falls.	Koochiching.		1	66.1		92	27	38	20	33	6.08		1.40	0.0	11	11	11	9	sw.	Rees Roe.
Kelliher.	Beltrami.		3	66.8		90	27	39	20	39	6.24		2.02	0.0	11	14	12	5	ne.	A. Gilmour.
Lake Crystal.	Blue Earth.		2	73.2		90	2	44	29	27	2.52		0.94	0.0	7	22	7	2	s.	W. P. Cobb.
Leech Lake Dam.	Cass.	1,300	21	66.6	+ 3.3	88	27	43	20	34	10.43	+ 6.86	3.08	0.0	13	4	20	7	se.	Hans Olesen.
Litchfield.	Meeker.	1,129	1	71.6		90	27</													



TABLE 1.—Climatological data for August, 1909. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days of inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
Minnesota—Cont'd.																					
St. Peter.	Nicollet.	840	16	75.2	+ 5.4	93	21	52	19	38	3.32	- 0.10	2.17	0.0	5	24	3	4	s. se.	Charles A. Cavanaugh.	
Sandy Lake Dam.	Aitkin.	1,234	16	67.8	+ 3.0	85	31	40	29	33	6.95	+ 3.00	3.23	0.0	12	18	10	3	se.	J. W. Comstock.	
Shakopee.	Scott.	750	14																		
State Sanatorium.	Cass.		1	69.9 <sup>a</sup>		88	21	45 <sup>a</sup>	31	2 <sup>a</sup>	7.27		3.36	0.0	10	17	9	4	w.	Dr. W. J. Marceley.	
Stillwater§§.	Washington.	694	4										0.84	0.0	11	14	3	14	sw.	W. B. Nease.	
Taylor's Falls.	Chisago.		2	73.0		94	3	42	29	33	3.69		2.01	0.0	7	16	9	6	s.	Mpls. Gen. Elec. Co.	
Wabasha.	Wabasha.	662	17	74.2	+ 4.2	96	6	47	30	38	3.73	+ 0.32	1.00	0.0	7				s.	Herman Yost.	
Warroad.	Roseau.		1	65.8 <sup>a</sup>		90	27	37 <sup>a</sup>	29	42 <sup>a</sup>	1.66		1.32	0.0	7	18	9	4	e.	John Sawyer.	
West Concord.	Dodge.	1,232	1	72.8		94	1	44	29	37	8.47		4.07	0.0	7	16	12	3	nw.	O. H. Orcutt.	
Willow River.	Pine.	1,046	11	67.0	+ 1.6	89	27	43	19	31	5.91	+ 1.38	4.20	0.0	9	16	7	8	n.	J. A. Brandt.	
Windom.	Cottonwood.	1,336	3	75.0		94	26	36	29	42	2.70		1.12	0.0	7	13	17	1	s.	Taber C. Richmond.	
Winnabago§§.	Faribault.	1,100	10	74.9	+ 4.3	94	26	43	29	34	3.60	- 0.40	0.71	0.0	10	13	8	9	se.	H. H. Haight.	
Winnibigoshish.	Itasca.	1,300	21	69.5	+ 5.4	88	27	45	31	31	7.24	+ 3.67	3.53	0.0	13	16	7	8	se.	John Duncan.	
Winona.	Winona.	680	14	75.8	+ 3.3	98	6	49	30	37	7.16	+ 3.93	3.42	0.0	9	17	7	7	se.	P. C. Meyers.	
Worthington§§.	Nobles.	979	14	72.6	+ 4.4	89	14	41	29	31	2.10	- 1.42	0.90	0.0	3	18	8	5	se.	W. I. Carpenter.	
Zumbrota.	Goodhue.	979	14	73.6	+ 4.5	95	2	42	29	34	4.85		2.45	0.0	11	17	10	4	nw.	W. C. Rowell.	
South Dakota.																					
Millbank.	Grant.	1,148	20	72.4	+ 3.9	97	27	36	29	46	3.45	+ 0.70	1.04	0.0	6	18	3	10	nw.	T. T. Patridge.	
Wisconsin.																					
Antigo.	Langlade.	1,489	14	68.4	+ 3.3	92	24	41	30	32	2.31		0.76	0.0	8	14	11	6	sw.	E. C. Larzeler.	
Barron.	Barron.	1,115	16	68.4	+ 3.6	88	6	42	30	34	4.08	+ 0.52	0.96	0.0	10	18	11	2	nw.	W. A. Kent.	
Beloit.	Rock.	750	19	72.6 <sup>b</sup>	+ 2.8	92 <sup>b</sup>	8	50	30	28	8.51	+ 5.00	3.60	0.0	7	22	1	8	n.	Smith Observatory.	
Brodhead.	Green.	812	11	73.6	+ 3.1	94	8	48	30	36	8.15	+ 4.13	2.52	0.0	10	21	8	2	sw.	H. D. Kirkpatrick.	
Burnett.	Dodge.	880	5	70.4		92	8	47	29	36	3.90		1.05	0.0	9	15	13	3	se.	Geo. W. Smith.	
Delavan.	Walworth.	920	16	72.4	+ 2.7	93	5	46	29	34	9.80	+ 6.70	5.92	0.0	10	13	9	9	nw.	E. S. Austin.	
Dodgeville.	Iowa.	1,116	10																		
Downing.	Dunn.	983	6	69.9	+ 5.5	92	7	39	29	39	3.50	- 1.44	1.18	0.0	5	11	3	17	sw.	E. F. Stoddard.	
Eau Claire.	Eau Claire.	800	18	73.2	+ 3.7	94	21	45	30	35	2.22	- 1.23	1.39	0.0	8	18	8	5	nw.	R. D. Whitford.	
Ellsworth.	Pierce.	1,068	1																		
Glidden.	Ashwood.	1,519																			
Grand Rapids.	Wood.	1,021	10	71.8	+ 4.0	96	6	44	29	38	3.28	- 1.36	1.30	0.0	9	21	4	6	s.	W. B. Raymond.	
Grantsburg.	Burnett.	1,095	18	70.4	+ 4.2	92	61	40	31	45	3.28	- 0.34	0.70	0.0	8	12	10	9	se.	Theodore Olsen.	
Hancock.	Waushara.	1,091	17	71.3	+ 2.8	93	61	45	29	32	3.96	+ 0.90	1.08	0.0	6	16	6	9	nw.	F. B. Hamilton.	
Hatfield.	Jackson.	973	1										1.34	0.0	5	16	5	10	s.	W. S. Woods.	
Hayward.	Sawyer.	1,197	18	68.3	+ 3.8	88	61	40	29	35	3.83	+ 0.27	1.40	0.0	8	11	12	8	sw.	W. E. Swain.	
Hillsboro.	Vernon.	1,060	18	70.7	+ 3.4	92	11	40	30	43	4.61	+ 1.40	3.00	0.0	6	11	16	4	se.	E. V. Wernick.	
Koepenick.	Langlade.	1,683	18	65.7	+ 1.3	91	24	39	29	36	3.24	- 0.30	1.03	0.0	7	0	25	6	nw.	E. S. Koepenick.	
La Crosse.	La Crosse.	714	37	74.1	+ 4.1	94	2	47	31	33	8.76	+ 5.35	3.96	0.0	11	14	8	9	s.	U. S. Weather Bureau	
Lake Mills.	Jefferson.	897	18	72.0	+ 2.9	93	8	46	30	33	4.40	+ 0.87	1.60	0.0	7	13	14	4	sw.	S. N. D. Smith.	
Lancaster.	Grant.	1,070	19	73.6	+ 4.0	93	2	45	29	34	3.49	+ 0.97	1.82	0.0	5	17	10	4	s.	Edward Pollock.	
Long Lake.	Oneida.	1,592	1	65.0		89	24	35	30	37	1.85		0.67	0.0	11	11	11	9	n.	Louie Frank.	
Madison.	Dane.	974	31	72.6	+ 3.0	91	8	48	31	26	4.39	+ 1.18	2.01	0.0	8	13	13	5	s.	U. S. Weather Bureau.	
Mather.	Juneau.	962		69.6		97	6	36	30	50	1.94		1.19	0.0	5	7	10	14	w.	Frank Evans.	
Mauston.	do.	882	13	71.6	+ 3.6	91	51	45	30	37	6.18	+ 2.97	4.65	0.0	5	20	7	4	se.	E. L. Hitchcock.	
Meadow Valley.	do.	974	18	70.8	+ 3.9	97	6	37	30	45	2.52	- 0.79	1.14	0.0	8	8	20	3	nw.	C. H. Johnson.	
Medford.	Taylor.	1,420	18	71.2	+ 4.0	95	71	42	29	39	2.15	- 1.49	1.30	0.0	5	17	9	5	w.	William Zeit.	
Merrill.	Lincoln.	1,267	3	71.4		97	26	45	29	42	2.11		0.63	0.0	9	21	7	3	ne.	F. M. McElroy.	
Minocqua.	Oneida.	1,604	5	67.7		86	51	45	31	28	1.40		0.80	0.0	3	16	11	4	sw.	Charles W. Hooper.	
Mondovi.	Buffalo.	738	1	72.2		95	6	43	30	37	2.62		0.77	0.0	9	22	5	4	nw.	Dr. Charles Hebard.	
Mount Horeb.	Dane.	1,226	5	73.4		94	17	47	30	38	5.35		2.99	0.0	7	17	7	7	e.	W. M. Lewis.	
Muscoda.	Grant.	666		73.8		99	5	42	30	42	5.12		3.10	0.0	4	11	13	7	e.	Henry Eckstein.	
Neillsville.	Clark.	996	20																		
New Richmond.	St. Croix.	990	4	72.9		94	21	43	29	37	3.71		0.96	0.0	10	13	12	6	sw.	F. R. Van Meter.	
Osceola§§.	Polk.	806	18	71.8	+ 5.0	93	6	39	29	39	3.66	+ 0.25	1.45	0.0	8	14	7	10	e.	C. W. Staples.	
Portage.	Columbia.	809	13	72.1	+ 3.5	92	8	46	29	33	4.24	+ 1.10	2.35	0.0	6	19	9	3	sw.	James Clear.	
Prairie du Chien§§.	Crawford.	690	22	75.8	+ 4.9	100	2	42	29	36	3.42	- 0.09	1.69	0.0	11	17	10	4	nw.	John Ducharme.	
Prentice.	Price.	1,551	11	66.7 <sup>c</sup>	+ 2.2	96	26	30	29	41	1.93	- 2.58	0.74	0.0	8	11	10	10	s.	J. G. Lash.	
Rhineland.	Oneida.	1,550	4	67.8		92	24	43	30	35	3.83		1.70	0.0	13	10	13	8	se.	John Lind.	
Sauk City.	Sauk.	758	1	74.8 <sup>c</sup>		101 <sup>c</sup>	6	48	29	45	4.64		1.97	0.0	4	13	10	5	sw.	K. Derleth.	
Shullsburg.	Lafayette.	1,019	3	72.4		90	21	46	29	30	6.51		3.40	0.0	9	16	7	8	sw.	H. B. Chamberlin.	
Solon Springs.	Douglas.	1,083	2	67.7		89	27	42	20	36	3.80		2.60	0.0	5	17	6	8	sw.	J. M. Sayles.	
Spooner.	Washburn.	1,104	14	69.0	+ 2.6	88	24	43	29	39	5.35	+ 3.12	1.30	0.0	13	20	8	3	sw.	H. A. Breese.	
Stanley.	Chippewa.	1,082	5	69.4		90	61	41	29	33	4.29		2.28	0.0	7	21	3	7	sw.	L. E. Scott.	
Stevens Point.	Portage.	1,113	16	71.2 <sup>d</sup>	+ 3.7	95	61	44	29	38	2.82	- 0.20	1.00	0.0	7	14	6	10	nw.	G. E. Culver.	
Valley Junction.	Monroe.	930	17	71.2	+ 4.2	94	6	35	30	41	3.89	+ 0.18	2.77	0.0	6	16	7	8	w.	F. Muermann.	
Viroqua.	Vernon.	1,412	18	73.4	+ 4.9	96	2	46	29	34	7.34	+ 3.65	3.05	0.0	9	15	10	6	sw.	H. E. Rogers.	
Vudessare.	Vilas.	1,600	1	65.6		88	25	39	17	40	3.11		1.30	0.0	8	18	8	5	sw.	L. L. Thomas.	
Watertown§§.	Jefferson.	824	17	70.4	+ 2.1	92	8	46	30	32	3.06	+ 0.33	1.05	0.0	7	15	14	2	se.	Charles J. Salick.	
Waukesha (1).	Waukesha.	970	13																		





TABLE 1.—Climatological data for August, 1909. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Illinois—Cont'd.																				
Colchester.....	McDonough.....	694	7	72.6		92	2	48	29	32	7.49		2.07	0.0	10	11	11	9	e.	Eli V. Kinsey.
Dakota.....	Stephenson.....	929	17	72.6		92	2	48	29	32	7.49		2.07	0.0	10	11	11	9	e.	Harold Leitzel.
Decatur.....	Macon.....	685	17	77.7	+ 2.9	98	12	49	30	37	2.20	- 0.94	2.11	0.0	3	26	3	2	ne.	Prof. J. H. Coonradt.
Dixon*.....	Lee.....	725	19	75.9	+ 3.7	99	15	49	30	43	1.13	- 1.90	0.45	0.0	5	23	5	3	s.	Mrs. E. E. Shaw.
Du Quoin.....	Perry.....	459	18	81.2	+ 3.3	103	28	52	30	43	0.17	- 2.42	0.13	0.0	2	23	8	0	sw.	G. H. Knetzer.
Dwight.....	Livingston.....	600	13	75.8	+ 2.8	96	8†	48	30	36	3.53	+ 0.89	1.54	0.0	6	13	11	7	ne.	Edward O. Welsh.
Galva.....	Henry.....	842	17	76.8	+ 4.1	100	12	48	29	36	0.90	- 2.54	0.40	0.0	7	25	3	3	se.	Prof. F. U. White.
Greenville*.....	Bond.....	635	26	79.7	+ 4.0	97	12†	54	30	34	1.55	- 1.42	1.00	0.0	4	24	4	3	se.	M. S. Oudyn.
Griggsville*.....	Pike.....	650	22	78.6	+ 3.3	97	15	51	30	33	0.33	- 2.40	0.33	0.0	1	21	10	0	se.	George F. Kneeland.
Hallway.....	Williamson.....	569	13	80.4	+ 1.9	103	28	54	30	38	0.95	- 1.48	0.73	0.0	3	25	3	3	w.	E. L. Hearn.
Havana.....	Marshall.....	475	16	80.2	+ 4.2	102	12	52	30	35	1.95	- 1.18	1.57	0.0	3	17	14	0	sw.	F. & C. Borgelt.
Henry.....	Mason.....	500	20	76.0	+ 3.5	96	12	49	30	33	3.93	+ 0.89	2.80	0.0	5	16	10	5	sw.	Dr. F. A. Powell.
Hillsboro.....	Montgomery.....	675	14	79.0	+ 2.6	98	12†	49	30†	43	1.04	- 2.27	0.60	0.0	3	25	4	2	se.	Ira L. Woodward.
Joliet.....	Will.....	541	17	73.7	+ 1.9	92	8	49	30	31	2.95	- 0.47	0.73	0.0	8	17	9	5	sw.	F. M. Muhlig.
Kishwaukee.....	Winnebago.....	730	19	73.8	+ 2.9	92	3†	46	30	33	6.41	+ 2.95	1.41	0.0	11	17	13	1	sw.	George Stevens.
Knoxville.....	Knox.....	775	19	75.4	+ 2.9	98	14	45	30	35	0.98	- 3.11	0.68	0.0	2	21	8	2	sw.	C. N. Butt.
La Grange.....	Cook.....	657	16	75.4	+ 4.0	96	8	49	30	32	6.45	+ 2.74	3.50	0.0	6	14	10	7	ne.	Prof. F. E. Sanford.
La Harpe.....	Hancock.....	698	30	77.0	+ 2.5	97	12†	50	29†	37	3.31	- 0.48	1.80	0.0	3	28	2	1	se.	John S. Campbell.
Lanark.....	Carroll.....	883	18	74.0	+ 3.6	98	15	43	30	40	1.92	- 1.52	1.09	0.0	8	18	10	3	se.	M. N. Wertz.
La Salle.....	La Salle.....	536	33	75.6	+ 3.6	94	14	51	30	28	4.00	+ 1.14	1.48	0.0	7	15	9	7	sw.	U. S. Weather Bureau.
Lincoln.....	Logan.....	482	20	75.4	+ 3.3	96	8	48	30	44	7.31	+ 3.83	3.80	0.0	6	25	4	2	w.	Joseph H. Peltier.
Martinton.....	Iroquois.....	633	21	75.4	+ 3.3	96	8	48	30	44	7.31	+ 3.83	3.80	0.0	6	25	4	2	w.	Joseph H. Peltier.
Mascoutah.....	St. Clair.....	425	18	81.4	+ 5.2	105	28	48	23	50	0.07	- 2.59	0.03	0.0	3	24	7	0	nw.	George Henrich.
Minonk.....	Woodford.....	745	15	77.0	+ 3.8	100	12	43	31	42	3.32	+ .012	2.00	0.0	4	21	10	0	w.	O. M. Davison.
Monmouth.....	Warren.....	784	16	73.5	+ 1.6	93	14	48	29	35	0.38	- 3.61	0.20	0.0	2	26	4	1	sw.	Hugh R. Moffet.
Morrison.....	Whiteside.....	685	13	73.5	+ 1.6	93	14	48	29	35	3.14	- 0.69	1.03	0.0	8	18	10	3	a.	Harold A. Maxwell.
Morrisonville.....	Christian.....	638	9	76.6	+ 1.4	96	13	45	30	41	0.40	- 2.44	0.20	0.0	3	29	2	0	ne.	J. D. Lewis.
Mount Vernon.....	Jefferson.....	511	14	80.7	+ 3.5	104	28	53	31	40	0.30	- 2.44	0.11	0.0	4	25	5	1	s.	Theodore P. Stelle.
Oregon.....	Ogle.....	702	17	74.2	.....	94	15	46	30	36	4.73	.....	1.65	0.0	9	18	3	10	sw.	Samuel Ray.
Ottawa.....	La Salle.....	500	23	76.0	+ 3.6	96	8†	49	30	32	3.59	+ 0.40	1.50	0.0	6	21	0	10	sw.	Miss Maud M. Harris.
Pana*.....	Christian.....	692	22	76.9	+ 2.4	96	15	48	30	31	1.74	- 1.61	1.27	0.0	4	30	1	0	ne.	C. W. Sibley.
Peoria.....	Peoria.....	609	33	77.0	+ 4.5	97	14	50	30	38	0.79	- 2.14	0.74	0.0	4	21	7	3	sw.	U. S. Weather Bureau.
Pontiac.....	Livingston.....	546	7	77.6	.....	96	14	50	30	34	3.75	.....	1.95	0.0	7	16	12	3	sw.	George Butterworth.
Riley.....	McHenry.....	956	50	73.3	+ 3.9	94	3	50	29	28	6.25	+ 2.83	2.12	0.0	12	12	14	5	sw.	John West James.
Rockford.....	Winnebago.....	763	13	73.6	+ 2.1	93	1	50	30	29	7.69	+ 4.28	2.30	0.0	9	22	7	2	.....	Hoamer C. Porter.
Rushville.....	Schuyler.....	670	8	78.0	+ 3.8	96	14†	51	30	33	0.81	- 2.47	0.81	0.0	1	27	3	1	s.	H. F. Dyson.
St. Charles.....	Kane.....	700	12	73.7	+ 2.7	93	8	48	30	34	6.58	+ 2.68	1.62	0.0	12	16	13	2	ne.	Dr. Wm. H. Bishop.
Springfield.....	Sangamon.....	644	28	78.4	+ 4.4	96	12	53	30	32	1.62	- 1.18	0.94	0.0	4	24	5	2	s.	U. S. Weather Bureau.
Staunton.....	Macoupin.....	625	15	80.0	.....	100	12†	48	31	45	0.39	.....	0.39	0.0	1	26	5	0	sw.	William F. Schaefer.
Streator.....	La Salle.....	626	15	76.6	+ 3.4	96	9†	48	30†	41	3.31	+ 0.23	1.10	0.0	5	27	2	2	sw.	Edward F. Sweetser.
Sullivan.....	Moultrie.....	530	9	78.0	.....	98	12†	43	30	41	1.30	.....	0.71	0.0	2	23	8	0	sw.	C. A. Corbin.
Sycamore.....	De Kalb.....	855	28	74.4	+ 4.6	96	8	46	30	37	7.08	+ 3.53	2.07	0.0	9	20	3	8	se.	Miss E. J. Davis.
Tilden.....	Randolph.....	500	23	80.2	+ 4.2	102	26†	51	31	42	0.07	- 3.12	0.06	0.0	2	27	4	0	s.	James A. Caldwell.
Tiskilwa.....	Bureau.....	798	14	74.0	+ 1.8	92	15	42	29	30	4.50	+ 0.33	3.00	0.0	7	23	3	5	e.	F. I. Smucker.
Walnut*.....	do.....	717	17	77.2	+ 3.5	96	5†	50	29	32	3.09	- 0.30	1.46	0.0	6	17	13	1	se.	O. C. Nussle.
White Hall.....	Green.....	573	17	77.6	.....	97	12†	48	31	43	1.48	.....	0.51	0.0	4	28	3	0	w.	Dr. R. A. Pritchett.
Windsor.....	Shelby.....	681	10	77.3	+ 3.1	99	12†	46	21†	46	1.20	- 2.39	1.10	0.0	3	17	13	1	s.	Herbert Rose.
Winnebago.....	Winnebago.....	900	21	74.1	+ 3.3	93	1†	46	30	33	6.82	+ 3.31	1.37	0.0	10	19	8	4	sw.	Frank Osborn.
Yorkville.....	Kendall.....	584	21	74.8	+ 4.2	99	7	42	30	41	2.09	- 1.17	1.00	0.0	7	19	8	4	w.	Herman A. Grimwood.
Zion.....	Carroll.....	938	13	73.3	+ 3.3	95	14	46	30	42	2.24	- 0.89	1.62	0.0	4	24	5	2	sw.	Robert F. Gillogly.

\* Precipitation included in that of the next measurement.

\*\* Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.

† Also on other dates.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

|| Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

|| Estimated by observer.

|| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

\*, †, ‡, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—Daily precipitation for August, 1909. District No. 5, Upper Mississippi Valley.

Stations.	River basins.	Day of month																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
North Dakota.																																		
Amenia	Red.	T.		.40		.12				T.	1.30	.15			T.	T.									.92	T.	T.						2.89	
Bottineau	Mouse		.05				T.	.05	T.	.07		.12						.02							1.06								1.38	
Cando	Sheyenne																																	
Crosley	Mouse		.48	.01	.35		.29	1.10	T.					T.	.33	.01		.02							.87	0.4							0.85	
Devils Lake	Sheyenne												0.1																				3.60	
Donnybrook	Mouse													T.									T.										T.	
Dunseith	do		.05		1.10		.05	.90	T.		.48	T.	T.												.42								1.22	
Edmore	Sheyenne		.06			T.	.32	T.	T.	T.	T.	T.			.20	.90								T.	.40								3.83	
Forman	do		1.07	.30		.20	1.05	1.02			.10				.60	.50			.07														0.95	
Grafton	Red.		T.						T.	.49				.41	.50										1.36								5.70	
Granville	Mouse																								.12								1.52	
Hamilton	Pembina																																	
Hannah	do		.21						.18																									0.93
Hansboro	Red.			.42	.35	.01		.81			.67	.52											.65	.28	.85								4.76	
Hillsboro	do																																	
Lakota	Sheyenne			.18		.61	.05	.35	.13		.20			.63		T.	T.	T.					.16		.85								3.16	
Langdon	Pembina	.41		.31		.42	.56	.56			.22														.18								2.66	
Larimore	Red.			.39		.30	.01		1.32		.27	T.		.01		.66	.80		.38					.33	.65								3.28	
Lisbon	Sheyenne			.05				.15	.18		.22	.37											.02	.02		.05							2.91	
McKinney	Mouse		T.																					.26									0.26	
Manfred	Sheyenne			.10	.04	.02	.07			.16				.08	.30		T.							12	1.30								2.19	
Mayville	Red.																																1.60	
Milnor	Sheyenne														1.10										.50								1.60	
Minot	Mouse		.02	.01		.05			.09	.02					.10	.01		T.							.18		.07						0.55	
Minto	Red.		.70		1.10			.27			.09													.14	.35								2.65	
Oriska	Sheyenne																																	
Park River	Red.																																	
Pembina	do	.11		.19		.04	T.	.54		.01	T.				.53					T.				.01	T.								1.43	
Portal	Mouse							.30			.25																						0.73	
Power	Sheyenne	.03			.38		.07	.94		.70	.58		.07		.04	.02					.59			.51	T.	T.		.18					3.93	
Pratt	Mouse							T.		.24								.02						1.42									1.68	
Towner	do		.65				.05							.08																			0.50	
University	Red.	.47	.03	.09	.25	.02	.78	.01		.21			.06		.08									.32									2.59	
Wahpeton	do																																	
Walhalla	Pembina		.50		.50		1.75	T.		.16											1.00												3.91	
Westhope	Mouse		.05	T.				T.		.58																							0.63	
Willow City	do		.07	.02	.07			.20		.24						T.	.04									.18							0.82	
Minnesota.																																		
Albert Lea	Mississippi			.09					T.	.50		.30	2.30	1.83	1.70	.30		1.00						.10	.10								8.24	
Alexandria	do			.15				.14	.72		.04	T.						.11						.18		T.	.04						1.38	
Angus	Red.	T.		1.30	.30	.23	.03	.58			.14											T.	.03		.11	.72	.09						3.53	
Bagley	do	1.18		.15						2.07	.61											.05		.02	.41	.05	T.						5.91	
Baudette	Rainy	.25		.30			.78	.22	.06		.22												.20	.34	T.	1.46	.05				.05		2.88	
Beardsley	Minnesota		1.32				3.51	1.39						.03										.10	.02								6.67	
Beaulieu	Red.																																	
Bird Island	Minnesota			.04				.03	T.	.05		.42		3.32				T.						T.	.15	.06	T.						4.07	
Caledonia	Mississippi		.36	.05						.05	2.60	.98	.39	1.50		0.2								.26	.43	.07	.03						6.21	
Campbell	Red.	.06		.10				.50	1.92		.20	T.												.16	.43	.07	.03						3.65	
Cass Lake	Mississippi	.91		.02				.33	1.07		.76	2.29						.04						.16	.43	.07	.03						6.59	
Collegeville	do						1.16							1.14								.13		.04	.02	.08							2.58	
Crookston	Red.	.38		.25	.15	.14	.17	.22	.65		.30	.37			T.									.04	.02	.08							3.38	
Detroit	do		.11	T.				2.00	.91	T.	5.40													.05	.62	.70	.10						9.89	
Fairmont	Minnesota			.12				T.	T.	.52		1.80	.64					T.						.05	.19								3.52	
Fairbault	Mississippi	.37		.15				T.	T.		.29	2.85	.98	3.71		.01		.02						.11	.08					.25		T.	8.59	
Farington	do	.46		.04				T.		1.36	.47		.40	T.			.58							.04	.14					.05			3.54	
Fergus Falls	Red.	T.		.23		.59	.40	.72		.36	.44					.03	.01	.03						.15	1.45	.21	.04						4.66	
Fort Ripley	Mississippi	.08					.16	.97		1.32	T.											T.			.40	.15	.09			.40			3.17	
Foston	Red.						6.8			2.64																							4.19	
Glencoe	Mississippi	.30		T.				T.	.65	.98	.08	.44													.18	.47							2.63	
Grand Meadow	do		.09						.65	.90	.75	3.85	.55	.45		.05								.60	.20	.05			.25	T.			8.34	
Hallock	Red.		.25		.10		.62		.25		.62														.01	.20	.05						2.12	
Halstad	do		.40		.32	.09	.02	.42		.90	.58			T.	.01								.13	.10	.16	.44							3.57	
Hinckley	St. Croix	.13	.11	1.49				.54		2.50	1.46				.22										.05								7.68	
International Falls	Rainy		1.21			1.40	.22	.27		.16	.05													.77	.13	.78	T.			.18	.75		T.	6.08
Keliber	Red.	.24		.13		T.	.62	.85	.17		2.02	T.													.49	1.57	T.		.03	T.		.05	6.24	
Lake Crystal	Minnesota							.26		.47	.94	.40												.11	.11					.23			2.52	
Leech Lake Dam	Mississippi	1.09		.35		1.19	.76	1.17		3.08	1.55	.02													.62	.26			.29		.04		10.43	
Litchfield	do			.78						.10														.58									1.55	
Little Falls	do			T.			.12	.06	1.03		.56	1.06												T.	T.	.08	.08	T.		.35			3.36	
Long Prairie	do																																	
Lynd(2)	Minnesota			.28				.17		.36		.12	.15	.38																			1.46	
Mankato	do		.09							.10																								



TABLE 2.—Daily precipitation for August, 1909. District No. 5—Continued.

Stations.	River basins.	Day of month.																															Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Minnesota—Cont'd.																																			
Warroad	Rainy						1.32			.10			.02								.02			.15	T.	.02				.03			1.66		
West Concord	Mississippi	.36									.203	.20	.87	2.53	.82								.49										1.46		
Willow River	St. Croix		.78	.02			T.		.45		2.18	.02			.10								.15	.15					.06				8.47		
Windom	Des Moines			.47			T.	.16	.38	.03	.09	.12	.45																				5.91		
Winnabago	Minnesota			.36				T.	.60	.71	.48	.66	T.	.31	.03									.17	.01				.27				2.70		
Winnibigoshish	Mississippi	.14		.80			.30	.23	1.10		2.42	1.11										.06			.52	.30	.08			.14	.04		3.60		
Winona	do.	T.	T.						T.	.06	.80	1.03	.66	.25	.42	T.							.81						.10				7.24		
Worthington	Des Moines			.90					T.	.90	T.							.30															7.16		
Zumbrota	Mississippi	.22		.12					.06	T.	.30	2.45	.37	.34	.43			.16					.03	T.					.37			T.	2.10		
South Dakota.																																			
Milbank	Minnesota	T.		.36				1.04	.71	T.				.98	.14			.22									T.	T.					3.45		
Wisconsin.																																			
Antigo	Wisconsin	.38			.08			.03	.05		T.	.37	T.			.07										.30	.12			T.	.54	.10	.76	2.31	
Barron	Chippewa	.08	.65				.96		.24		.78					.07														.13	.120		4.08		
Beloit	Park	.26							.82		.99	*	.51	*	3.60															.13	.120		8.51		
Brodhead	do.	.10			.25				.82		.60	1.55	1.05	2.52	.30															.13	.120		8.15		
Burnett	do.	.03		.55	.10				T.		.50	.02		1.05	.66					.06			T.							.03	T.		3.90		
Delavan	do.	.26		.01					.70		.99	*	5.92	.56																			9.80		
Dodgeville	do.																																3.50		
Downing	Chippewa		T.	.70							.59	1.18	T.	.20	.83	T.							T.		.15	.04		T.		.07			2.22		
Eau Claire	do.		.10								.32	1.39			.13	.02																			
Ellsworth	Mississippi																																		
Glidden	Chippewa																																		
Grand Rapids	Wisconsin		.09				*	.03	.06		.07	1.30	.02	T.	.75	T.								.43	T.					.53			3.28		
Grantsburg	St. Croix		.50	.10					.40		.70	.70												.35		.18	.05				.65			3.28	
Hancock	Wisconsin	.75									.91	T.	T.	.75																				2.22	
Hatfield	Black									.03		.50	.07	1.34																				3.83	
Hayward	St. Croix	.62		T.			T.	T.	.25		.70	1.40																						4.61	
Hillsboro	Wisconsin								.04		.75		T.	*	3.00	T.								.61						.10	.11			3.24	
Koepenick	Wisconsin	.85			1.03				.04		.15	.40																						8.76	
La Crosse	Mississippi	T.		.03					.06		.73	.18	.40	.98	2.98	T.								.51			.01		.04	.20			4.40		
Lake Mills	Park	1.60		T.	.03						.57	T.	.52	.14	1.42																			3.49	
Lancaster	Mississippi										.01	.38	T.	.67	.04	.04		.14																1.85	
Long Lake	Wisconsin	.27		T.	.06				.24	.01	T.	.67	.04	.04																				4.39	
Madison	Park	T.		T.					.10	.78	T.	.78	.06	.28	1.73	T.														.58	T.			1.94	
Mather	Wisconsin											.75			4.65	.08																		6.18	
Mauston	do.											.33	.03	.08	1.14																			2.52	
Meadow Valley	do.				T.					.07																								2.15	
Medford	Black											1.30			.08		.30																	2.11	
Merrill	Wisconsin	.02		.02	T.				.47		T.	.61	T.	.08	.11																			1.40	
Minocqua	do.	.40										.80	T.																					2.62	
Mondovi	Mississippi			.17							.38	.77	T.	.25	.12				.07															5.35	
Mt. Horeb	Park			T.								.86	T.		2.99	.36															.80	T.		5.12	
Muscoda	Wisconsin																																		
Neillsville	Black																																		
New Richmond	St. Croix		.22	.64				.96	.11		.30	.91	.04	T.		.05																		3.71	
Oacola	do.	T.	T.	.43			.10		.41	.30	.45														.22	.60				.15				3.66	
Portage	Wisconsin	.69									.75																								4.24
Prairie du Chien	Mississippi	*	.03		T.				T.	.03	.19	.01	.69	.06	1.07																			3.42	
Prentice	Chippewa	.17		.11					.17		.35	.11																						1.93	
Rhineland	Wisconsin	1.11		.02	.05				.21	.02	.02	.68	.02																					3.83	
Sauk City	do.								.29		.97			*	1.45	T.																		4.64	
Shullsburg	Mississippi			.02	.08				.32		.57	.60			.34	.64																		6.51	
Solon Springs	St. Croix	.40		.20			.30			.62	.92			.24		.20																		5.35	
Spooner	do.	.54	.20	.20		1.30			.01		.43	1.85			.44																			4.29	
Stanley	Chippewa			T.	.96						1.00				.66																			2.82	
Stephens Point	Wisconsin				.14																													3.89	
Valley Junction	do.			T.					.08		.32	T.	T.	2.77																				7.34	
Viroqua	Mississippi								.02	T.	.04	1.90	1.10	.32	.05	T.																		3.11	
Vudessare	Wisconsin	.25		.18					.10		.40	.56	T.	T.	1.30																			3.06	
Watertown	Park		.43		.05								.88																						

TABLE 2.—Daily precipitation for August, 1909. District No. 5—Continued.

Stations.	River basins.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Iowa—Cont'd.																																	
Grinnell.	Iowa.			.10		.10									.04								.21					1.59				2.04	
Grundy Center.	Cedar.			T.						.08		.23		.16	.12			.05					.68	.13		T.		.10	T.			1.50	
Guthrie Center.	Raccoon.			.05																		1.00	.19			.02						1.20	
Hampton.	Cedar.			T.					.26	.63			1.30		.15	.16		.05					T.	.18			.02	.38			.02	3.15	
Humboldt.	Des Moines.			.11	T.					.16			.30	.05	.07		T.							.06								0.75	
Independence.	Wapipinicon.									.01				.12	.05	.04		.04					.83			.04		.73	.05			1.91	
Indianola.	Des Moines.					.04										.50		T.					.26	T.				.14	.03			0.97	
Iowa City.	Iowa.															.08				.16			T.	T.			.09	.85	.35	.35		1.88	
Iowa Falls.	do.			T.	T.		T.			.01				.81	T.	.13				.02				.11	.06				T.	.05		1.19	
Jefferson.	Raccoon.																															0.68	
Keokuk.	Mississippi.																										.66	.02		T.		0.23	
Keosauqua.	Des Moines.						.11																			T.	T.	.12				0.23	
Knoxville.	do.					.92					T.		.10			T.		T.					.23					T.	T.			1.25	
Lacena.	do.																.44						.42				.60					1.40	
Le Claire.	Mississippi.		.20							.10			.64		.02			.03					T.			T.	.93	.02	.72	T.		2.66	
Marshalltown.	Iowa.													.03					.01				.10	.02				.05				5.13	
Mason City.	Cedar.			.08		T.				1.34		.07	1.27	.37	.75			.30					.50	.40					.05				2.61
Mt. Pleasant.	Skunk.			T.													T.	.04										.17	T.			0.21	
Muscataine.	Mississippi.			.04																						.05	.10	.90	.42	.08			8.21
New Hampton.	Wapipinicon.								4.30	.12				.45	.24	.28	T.		.17					.04				.08	T.	.12		0.81	
Newton.	Skunk.		.27																				.54					T.				6.07	
Northwood.	Cedar.			.06					T.	1.03		T.	1.30	1.22	1.50			.53				.02	.26					.06			.09	5.20	
Olin.	Wapipinicon.		.80											1.80														2.00	.40		.20	6.87	
Osage.	Cedar.			T.	.68				T.	.35			1.20	1.52	.00	.64		.70					.33	.18				.37				0.12	
Oskaloosa.	Des Moines.					T.					.01						T.	T.								T.	T.	.11	T.			0.23	
Pella.	do.					T.											T.										.01	T.	.07			0.31	
Perry.	Raccoon.			.10		T.												T.					.12	.02								0.90	
Plover.	Des Moines.			.42										.15	.15		.08		.10													2.07	
Pocahontas.	do.								T.	1.17			.46	.20	.24											T.						6.20	
Ridgeway.	Mississippi.		.02		.07				T.	.53	.06	1.12	.54	1.24	.16	T.		.13					.18	T.					.15			0.05	
Rockwell City.	Raccoon.								.05																							0.29	
Sac City.	do.			.20													.07		.02														0.80
St. Charles.	Des Moines.					.05																							.13	T.			2.67
Sigourney.	Skunk.															.20											.05		2.42			0.71	
Stockport.	do.																										T.	T.	.71	T.		2.66	
Storm Lake.	Raccoon.			.34					1.21	.23						.78		.03											.41	.07			2.72
Tipton.	Cedar.					T.						.02											T.	T.		2.00						1.14	
Toledo.	Iowa.																						.47	T.				.47	.20			1.50	
Wapello.	Iowa.															.06		T.									1.24					0.26	
Washington.	Skunk.																										.02					1.94	
Waterloo.	Cedar.			T.					.08	.07			.07	T.		.03		.13					.72					.78	.06			T.	0.94
Waukeo.	Raccoon.			T.						.01													.23					.65	.05				1.73
Waverly.	Cedar.								.46				.30	.02	.01	.50		.20					.04	.03				.13	.04			2.66	
Webster City.	Des Moines.					.43							.77		.24			.02					.68					.54				1.07	
West Bend.	do.			.27					.29				.20	.28		T.	.02	T.						.01									1.00
Whitten.	Iowa.																															.63	
Wilton Junction.	Cedar.		.15																								.63	.64	.29				1.71
Winterset.	Des Moines.					T.																	.35	T.				.05	.03			0.43	
Zealand.	Iowa.					.31																	.12	.04					.09			0.60	
Missouri.																																	
Darksville.	Chariton.																																0.13
Gorin.	Mississippi.					.13																											0.09
Hannibal.	do.						T.									.08												.01		T.			0.51
Louisiana.	do.					.10	.12									.26		.03															0.22
Mexico.	do.				.02	T.	.14																										0.10
Steffenville.	Mississippi.																																0.05
Sublett.	Chariton.																																
Warrenton.	Mississippi.																											.10					
Indiana.																																	
Collegeville.	Iriquois.		.01		.02	T.	1.00				T.	.01		2.90	2.22	.11												.15	.55				6.97
Knox.	Kankakee.			.09	1.57	T.								.66	.28	1.33	T.	.34									.10	.18	1.15				5.70
Laporte.	do.													.44		2.12	.15											.40	.21				3.32
Plymouth.	do.			.30	T.									.45		1.61		.53										.15	1.91	T.			4.95
Illinois.																																	
Aledo.	Mississippi.											T.															.35	.03	.06				0.44
Alexander.	Illinois.																	.11	T.								.27	.28					0.66
Antioch.	do.		1.61								.32		.65			2.85		.80															6.55
Ashton.	Mississippi.				.04							.06	.06	1.12	T.	.68												.34	T.	.75			3.75
Astoria.	Illinois.			T.		T.												.52		</													



TABLE 2.—Daily precipitation for August, 1909. District No. 5—Continued.

Stations.	River basins.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Illinois—Cont'd.																																	
Laoml.	Illinois.															.50										.03	.70						1.23
Martinton.	do.			.98	.27					.03		3.80	1.13			T.										1.10							7.31
Mascoutah.	Mississippi.						.02								T.	.02			.03									.15	T.	T.			0.07
Minonk.	Illinois.	.22		T.							T.		T.	2.00				T.									.95	.15					3.32
Monmouth.	Mississippi.		T.													T.											.20	.18					0.38
Morrison.	do.		T.						.50		1.03		.06		T.	.04											.47	.10	.81				3.14
Morrisonville.	Illinois.						.10	.04				.11					.02	T.									.18	.20					0.40
Mt. Vernon.	Mississippi.											.20	.45	.46	.05	1.65			.05										T.				0.30
Oregon.	do.	1.00			.12					T.		.20	.45	.46	.05	1.65										.45		.35	T.		T.		4.73
Ottawa.	Illinois.	.13		.23	1.50							.69		.89												.15							3.59
Pana.	Mississippi.																.10		.09								.28	.27					1.74
Peoria.	Illinois.	.02		T.								.05		.02		.01		T.									.74			T.			0.79
Pontiac.	do.		.06		.05						.05		.27	1.95													1.25	.12		T.			3.75
Riley.	Mississippi.	.04		.36	.07					1.10		.62	.43	.29	2.12	.44											.11		.60	T.			6.25
Rockford.	do.	T.	1.49		.39						T.		.72	1.58	1.63	.67	T.										T.	.14	.16	.91			7.69
Rushville.	Illinois.					T.																					.81						0.81
St. Charles.	do.	.04	.03	T.	.15					.19		1.13	.50	1.22	1.62	.86											.46		.36	.02		T.	6.58
Springfield.	Illinois.															.60		.07									.94	.01					1.62
Staunton.	Mississippi.														T.		.39																0.39
Streator.	Illinois.		1.10		.53						.30			1.10					T.								T.	.28					3.31
Sullivan.	Mississippi.																	T.									.59	.71					1.30
Sycamore.	do.		.48		.33						.26		.62	.90	.72	2.07													.55		1.15		7.08
Tilden.	do.					.01						T.							.06														0.07
Tiskilwa.	Illinois.	.06		.29							.48			3.00				T.	T.								.41	.24		T.			4.50
Walnut.	Mississippi.	.05		T.							.54	.03		.98													1.46	T.		T.			3.09
Warsaw.	do.																										.15						0.15
White Hall.	Illinois.				.45	.49		T.			.03						.51										T.						1.48
Windsor.	Mississippi.																.10										.50	.60					1.20
Winnebago.	do.	.75		T.	.75					T.		1.00	.67	.28	1.37	.85											.17		.95			.03	6.82
Yorkville.	Illinois.	.02			.50					T.			.15	1.00	.01	.01												.40					2.09
Zion.	Mississippi.	.40										.02															.20		1.62				2.24

TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 5, Upper Mississippi Valley.

Date.	North Dakota.										Minnesota.																	
	Bottineau. H.		Devils Lake.		Labon. H.		Minot. H.		Pembina. H.		Collegeville.		Crookston. H.		Grand Meadow.		Montevideo. H.		Moorhead.		New Ulm. H.		Pine River Dam.		St. Paul.		Winnibigoshish.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	87	55	88	55	91	62	91	53	89	55	86	58	87	60	96	65	93	65	88	62	93	62	83	55	88	61	84	58
2...	86	56	90	66	93	63	89	68	87	63	90	65	92	63	95	64	92	67	92	68	95	67	87	60	92	68	85	62
3...	82	50	81	60	81	64	86	49	84	62	85	67	78	67	91	68	85	67	80	62	87	70	81	44	85	70	81	69
4...	80	56	84	59	89	51	84	53	86	69	86	58	86	58	92	59	87	56	87	55	88	58	87	58	85	60	86	55
5...	84	58	85	61	91	59	88	56	84	69	87	64	90	60	94	69	91	63	90	64	93	60	88	65	91	61	86	64
6...	78	62	79	58	86	70	82	64	82	61	86	65	84	70	92	67	91	67	84	68	92	63	86	63	90	67	80	63
7...	65	55	65	52	75	63	65	55	64	58	65	67	65	63	92	62	80	67	73	59	88	69	79	62	86	70	81	63
8...	77	47	76	47	78	55	79	44	81	44	78	62	77	58	82	63	79	65	78	58	83	72	76	62	81	71	79	61
9...	81	56	78	55	79	60	84	55	79	48	78	63	80	56	85	65	78	63	81	61	82	68	78	57	79	68	78	60
10...	69	69	78	66	92	63	92	58	79	61	78	63	72	63	82	62	93	68	85	68	92	69	69	61	82	66	74	59
11...	85	60	79	62	81	63	89	64	84	56	84	64	75	61	80	59	92	73	81	68	90	72	73	53	83	62	71	58
12...	86	62	78	60	85	65	91	64	79	62	87	63	83	60	82	67	85	71	85	65	87	70	78	56	73	65	73	60
13...	92	53	89	65	89	68	98	63	84	61	82	61	82	65	80	70	86	68	86	66	82	72	86	58	80	69	79	59
14...	91	56	86	63	88	64	93	63	91	61	89	63	84	66	90	69	90	68	88	64	88	69	88	59	85	70	85	65
15...	90	55	86	60	90	65	91	54	88	63	90	65	85	63	92	64	93	70	88	64	94	69	85	61	89	69	82	62
16...	79	69	78	58	86	57	78	58	84	59	86	59	82	61	86	65	87	60	84	60	89	66	80	59	82	65	84	59
17...	81	55	77	57	82	63	84	55	79	62	85	62	82	63	85	64	87	65	86	62	85	65	84	64	83	64	87	62
18...	91	44	85	54	84	50	91	45	84	51	84	59	84	53	86	63	84	60	83	52	84	65	76	59	82	65	79	60
19...	79	47	78	52	80	56	84	48	74	47	81	59	75	53	84	52	85	55	80	56	87	57	75	60	79	60	73	59
20...	96	52	87	53	87	49	98	54	81	48	79	55	83	55	85	53	85	53	85	54	85	56	81	45	80	57	76	49
21...	87	55	90	54	90	59	89	64	89	60	81	62	90	59	83	55	87	58	90	62	89	59	84	58	84	62	85	63
22...	79	38	75	49	77	49	80	41	81	47	78	61	76	62	83	58	83	57	78	52	86	64	81	54	81	64	81	58
23...	89	56	80	60	91	62	87	55	82	56	79	59	83	54	85	63	89	61	88	62	84	65	79	56	78	65	77	56
24...	73	55	71	56	67	65	72	51	72	55	90	67	68	62	90	64	87	62	91	69	80	60	90	71	76	65	71	65
25...	78	50	80	55	86	47	83	52	78	47	84	63	79	54	90	67	87	60	82	56	82	67	78	64	81	67	80	62
26...	90	48	86	52	90	53	95	49	82	46	85	62	85	57	91	65	94	62	88	56	95	65	82	58	89	64	81	54
27...	78	55	80	54	91	59	78	62	78	68	90	68	89	60	86	70	95	65	92	65	95	68	88	60	89	73	88	68
28...	56	40	64	46	68	47	70	43	68	43	88	58	65	53	81	55	75	56	68	49	76	61	79	57	78	57	82	59
29...	74	36	72	40	77	33	83	32	72	33	72	47	71	43	70	45	76	40	73	40	73	44	88	50	71	50	68	49
30...	71	39	72	43	78	54	78	43	69	44	81	54	73	55	76	48	80	55	76	52	83	48	77	56	78	54	78	54
31...	66	40	65	39	69	40	70	35	71	37	81	46	62	39	75	55	72	49	67	42	73	56	66	46	65	48	70	45
Mns	80.6	52.6	79.5	55.2	83.6	57.5	85.9	53.3	80.2	54.3	83.7	60.9	79.6	58.7	85.9	61.8	85.8	62.0	82.5	59.2	86.9	64.0	80.7	57.4	82.6	64.0	79.6	59.4

Date.	Wisconsin.										Iowa.																	
	Delavan.		Eau Claire.		La Crosse.		Madison.		Mauston.		Spooner.		Wausau.		Algona.		Cedar Rapids. H.		Charles City.		Davenport.		Des Moines.		Dubuque.		Keokuk.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	87	64	89	62	94	65	88	64	88	58	83	57	82	58	89	63	93	68	92	62	91	69	93	68	91	68	92	69
2...	87	59	94	64	94	66	86	64	88	57	85	65	82	60	91	65	94	67	93	64	92	67	90	71	91	66	94	69
3...	91	59	89	70	83	70	87	65	84	68	82	67	83	64	85	68	86	70	88	71	90	71	89	73	85	78	93	70
4...	91	65	89	61	88	65	87	70	87	62	82	57	84	61	86	62	93	69	89	63	90	72	88	72	89	69	93	74
5...	93	68	93	58	92	59	87	67	91	54	85	59	89	57	89	60	92	61	91	57	90	68	87	68	88	65	91	71
6...	91	69	94	65	93	65	89	65	91	58	86	66	93	61	88	63	90	66	90	64	90	66	88	68	89	63	88	70
7...	89	57	93	64	92	64	90	64	90	60	84	67	91	63	87	64	90	62	89	62	90	67	88	67	89	65	89	68
8...	92	62	86	69	88	71	91	66	90	68	79	65	87	69	82	68	91	66	87	66	92	72	91	67	90	69	91	70
9...	81	70	83	66	84	72	78	70	80	70	78	60	81	63	88	70	91	72	83	70	93	74	92	71	85	73	93	72
10...	79	57	80	63	82	61	80	64	83	66	67	61	77	62	90	71	85	64	85	69	86	66	90	71	84	69	91	73
11...	77	57	75	55	78	59	72	60	74	60	75	56	79	56	92	72	94	63	83	66	94	64	95	72	81	64	95	66
12...	79	65	74	65	82	70	77	67	74	68	75	61	70	61	87	69	93	66	82	69	93	71	94	75	88	71	97	75
13...	85	64	80	67	82	69	83	65	80	65	74	61	73	62	85	72	96	72	84	70	96	72	95	73	89	70	97	73
14...	88	67	85	69	88	71	85	70	84	68	84	68	77	65	90	69	98	73	88	72	94	78	96	75	93	73	96	77
15...	91	67	88	66	91	69	88	72	90	65	84	60	86	61	93	68	97	76	91	66	91	76	96	75	92	74	98	75
16...	85	65	86	66	85	67	82	66	83	62	76	56	78	61	88	67	93	69	85	66	83	70	94	72	87	69	96	71
17...																												



TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 5—Continued.

Date.	Hannibal, Mo.		Laporte, Ind.		Illinois.													
					Calro.		Greenville.		La Salle.		Mt. Vernon, #1		Peoria.		Springfield.		Winnebago.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	89	66	91	70	84	71	89	65	90	65	90	67	89	64	89	66	93	64
2.....	91	67	91	63	88	72	91	67	91	64	93	67	92	63	92	68	93	60
3.....	93	67	94	63	89	73	92	71	92	66	91	68	94	66	90	70	92	64
4.....	93	73	92	68	91	74	92	72	92	70	91	70	93	70	93	73	91	64
5.....	89	69	87	66	93	75	92	72	90	66	93	70	92	63	92	71	90	63
6.....	90	69	91	63	85	69	89	69	88	63	92	70	90	64	89	66	90	68
7.....	89	68	95	63	88	71	90	66	90	65	90	65	90	65	90	65	90	59
8.....	91	69	99	62	90	73	92	70	92	66	95	67	93	66	92	69	93	64
9.....	95	70	87	67	90	73	92	71	93	70	94	68	93	66	94	71	89	71
10.....	92	70	85	61	93	74	93	75	84	66	95	70	88	68	89	72	87	67
11.....	94	72	87	58	93	76	93	69	90	62	94	69	94	64	94	66	88	59
12.....	98	73	91	65	95	78	97	74	93	71	99	76	97	72	96	74	90	68
13.....	96	71	90	67	93	77	95	76	89	71	98	74	95	71	96	74	86	66
14.....	95	77	85	66	91	77	95	75	94	76	97	74	97	75	96	77	93	68
15.....	97	74	92	69	95	78	96	77	92	73	99	80	95	72	96	71	90	70
16.....	94	71	86	63	95	78	93	71	89	66	96	81	93	67	93	71	86	68
17.....	72	66	76	60	88	75	89	67	82	62	95	71	86	59	88	65	82	64
18.....	86	68	80	60	86	72	87	72	85	62	86	68	87	66	87	68	84	60
19.....	86	66	88	60	88	70	89	70	87	67	95	65	89	62	89	69	84	62
20.....	85	63	92	57	91	72	89	67	79	59	93	64	82	59	84	64	78	58
21.....	83	60	90	60	82	64	84	57	79	53	83	64	83	55	81	57	82	52
22.....	86	54	86	52	85	62	86	58	83	58	86	54	87	59	84	57	81	56
23.....	89	62	93	55	90	65	91	59	86	63	94	54	89	60	88	62	88	58
24.....	95	66	92	58	91	70	93	64	91	65	95	60	94	64	93	63	93	60
25.....	94	75	90	61	92	75	93	73	79	72	99	76	88	70	92	71	78	66
26.....	94	73	96	65	96	75	93	71	89	71	101	71	89	70	88	71	92	66
27.....	97	75	91	67	96	74	97	73	83	72	101	71	94	74	95	74	82	66
28.....	90	69	94	65	99	73	97	69	86	63	104	74	89	63	92	69	83	66
29.....	78	57	80	58	82	67	83	62	74	53	88	65	76	53	76	58	75	47
30.....	78	55	80	48	84	61	84	54	77	51	86	55	79	50	77	53	76	46
31.....	92	72	86	55	89	65	92	58	77	53	92	53	88	50	88	56	77	50
Means.....	90.7	67.3	89.0	61.8	90.1	71.9	91.2	68.2	86.6	64.6	93.7	67.7	89.8	64.2	89.8	67.1	86.3	61.9

## Climatological Data for August, 1909.

## DISTRICT No. 6, MISSOURI VALLEY.

J. WARREN SMITH, District Editor.

## GENERAL SUMMARY.

The average temperature was above the normal in practically all parts of the district, and it was much warmer than usual in the Southeastern States. The temperature reached above 100° in each State during the month. The highest recorded was 109° in North Dakota and Kansas. A cool wave passed over the district during the last days of the month that carried the temperature below freezing in Montana, Wyoming, North Dakota, and South Dakota, and to 40° or below in the other States. The lowest temperature reported was 14° in Montana on the 28th.

A severe drought prevailed in the lower Missouri Valley while the rainfall was much above the normal in the mountains in Colorado and it was unusually wet in North Dakota.

In Montana it was the warmest August since 1905, and during the past fifteen years only those of 1897, 1898, and 1905 were materially warmer. Frost occurred in many localities in the western counties on the 28th, and locally on other dates. The rainfall was very unevenly distributed over the State. In northwestern Teton County, lying immediately east of the Continental Divide, several stations reported no rain during the month, while the rainfall was from 1 to 2 inches above the normal in southwestern counties. Some damage was caused by hail in Fergus and Meagher counties. A severe windstorm did some damage at Harden in eastern Yellowstone County on the 7th.

The temperature averaged 2° above the normal in North Dakota, principally because of high night temperatures. Toward the close of the month, however, the night temperatures were decidedly lower, and frosts were reported from several stations on the last three days. The precipitation for the portion of the State in this district was 1.27 inches above the normal. There was an abundance of sunshine and the average was above the normal.

There were some unusually prolonged periods of very warm weather in South Dakota and a number of excessively warm days. At Tama, Meade County, the temperature reached or exceeded 100° on ten days in the month. There has been but one August with a higher mean temperature in the past nineteen years. A light frost occurred in places in a number of eastern counties on the 29th. A wet period occurred in this State from the 6th to 9th, inclusive, during which time the aggregate rainfall was generous to heavy over most of the central and eastern counties. Near the close of the month a drought prevailed in many central and western counties. Thunderstorms were frequent and local hailstorms occurred in a few counties. There was ample sunshine, and in some parts of the State there was not a cloudy day during the month. A local windstorm damaged some farm buildings in northeastern Spink County on the 16th.

The temperature averaged from 2° to 4° a day above the normal over nearly all parts of the Wyoming division. The lowest temperatures of the month were recorded on the 28th when it was below freezing over the mountain districts. In Big Horn County, the station at Basin, with an elevation of 3,862 feet above sea level, had an average temperature of 75.0°, while at Kirwin, with an elevation of 9,187 feet, the mean temperature was only 53.0°. The precipitation was below the normal over most of the district. At three stations no rain fell and at two only a trace was recorded. A trace of snow was reported at one station.

In Colorado the month was characterized by uniformly warm weather, deficient sunshine, and unusually frequent and

heavy showers in the mountains. The frequency of rainfall in the mountains is without parallel in the summer, many stations reporting over twenty days with measurable rainfall, and several had rain on every day but one. The temperature varied but little from day to day, and the monthly extremes occurred on a number of dates at the several stations. Although the mean temperature was high, the extremes were not unusual; the maximum for the State has been exceeded in nearly every August, while the minimum is the highest of record. The sunshine was deficient except in the extreme east, and in the mountains there has rarely been so much cloudiness in a summer month.

The mean temperature for Nebraska averaged about 4° above the normal. In only two years has the mean temperature for the State been higher, and in only 1881 was August appreciably hotter than this year. The maximum temperatures were generally 90° or above on sixteen to twenty-four days, and about 100° or above at most places on one or more days. Less than one-third of the normal rainfall occurred in the southeastern counties, and about one-half in the southwestern counties, while in the northwestern part of the State the fall was decidedly above the normal. Only about two-thirds the usual number of rainy days occurred, while the cloudiness was unusually small.

In Iowa, August, 1909, will be noted for its uniformly high temperature, the small number of cloudy days, and, over the larger part of that part of the State included in this district, the small amount of rainfall. Both the day and night temperatures were high until the 28th, when a cool wave passed over the State, resulting in light frosts on low ground on the morning of the 29th over the northern and in a few localities in southern counties. No damage was done to vegetation, however, by the frost. The maximum temperatures were 90° or above on eight to ten days in the northern and twenty-three days in the southern counties. The rainfall was deficient except at Sioux City, and there the excess was only .02 inch. The only storms of consequence were a few local and moderate wind and hail storms but no serious damage was done.

The month was characterized in Kansas by unusually hot, dry weather and a large percentage of sunshine. The temperature was above the normal at all stations. Some hot winds occurred in Rawlins, Decatur, Norton, and Smith counties. The precipitation was below the normal at all stations, the deficiency averaging 1.66 inches in the western portion and 2.58 inches in the eastern portion. A severe hail and wind storm occurred at Salina on the 1st. A high wind and thunderstorm, with hail, occurred at Manhattan on the 3d and a hailstorm at Dresden on the 5th.

In Missouri August was characterized by uniformly high temperatures, severe and continuous drought, and an excessive amount of sunshine. The warm wave prevailing at the close of July increased in intensity during the first fourteen days of August, culminating about the 15th to the 18th in a hot wave of marked intensity throughout the State. The day temperatures during the period were higher than previously recorded since 1901. The average temperature for the month was the highest for August for twenty-two years, except in 1900. The day temperatures ranged generally between 90° and 100° and exceeded 100° at the majority of stations on several days. The nights were also warm as a rule, the temperature ranging between 65° and 75° most of the time, except on the 22-23d and 29-30th. At several stations no rain fell at all during the month, and drought prevailed in all districts during the entire month, except over limited areas where local showers



occurred. It was the driest August in twenty-seven years. There was an average of twenty-four clear days.

#### TEMPERATURE.

The temperature was above the normal in all parts of the district and was much above in the lower Missouri watershed. Temperatures of over 100° were recorded in each State, while it reached 109° in Kansas and North Dakota. The temperature was below freezing in the mountain districts and in North Dakota and South Dakota sometime during the month. The lowest reported was 14° at Bowen, Beaverhead County, Mont. on the 28th.

#### PRECIPITATION.

The rainfall was much above the normal in the mountains in Colorado, and more rain fell in North Dakota and the northern part of South Dakota than usual, but a very severe drought prevailed in the southeastern part of this district. No rain fell at several stations in Missouri and at three in Wyoming. The greatest monthly fall was 7.59 inches at Castlewood, Hamlin County, S. Dak.

#### MISCELLANEOUS.

The temperature was unusually high in the lower Missouri watershed during the month of August, and was generally above the normal in all parts of the district. The rainfall was very deficient in the lower watershed, and, combined with the high temperature, a serious drought resulted. The rainfall was slightly deficient in the extreme upper valley, and somewhat in excess in the middle valley region in North Dakota and northern South Dakota, and much above in the mountains in Colorado.

The weather has been favorable for construction work on the different United States reclamation projects in this district, except in a few cases. On the Garden City Project, Kansas, the high temperatures, with little or no wind during a large part

of the month, considerably affected the economical operation of the plant, by keeping the circulating water for the pump condensers at too high a temperature. From August 5 to 20 flood water from the Arkansas River could be used for irrigating at this place. The Shoshone River at the Shoshone Project, Wyoming, which gave the highest recorded discharge on July 3, and flowed at that time at a depth of 17.3 feet over the partially completed dam, has continued to subside and preparations for resuming construction work have been made as fast as the stages of the water would admit. The Yellowstone River continued to fall, but did not reach a low stage at the Lower Yellowstone Project until August 15. At this place actual construction work was delayed because of the high water in July and the first part of August.

The rivers were higher than their usual stages in Colorado on account of heavy rains in the mountains. Cloudbursts near the Royal Gorge caused considerable destruction at Canyon City and vicinity during the early part of the month.

The effect of the dry weather and high temperature on vegetation in the lower watershed of the Missouri was very damaging. This was especially true in Missouri, Kansas, southern Nebraska, and western Iowa. The ground was parched and dry and little or no fall plowing could be done.

While freezing weather occurred in the mountains and light frosts occurred in other northern districts little or no damage resulted to farm crops during the month.

The mountain and valley winds were strongly developed in Colorado, but at the higher levels the wind was unusually light, and varied frequently from the usual easterly drift.

The prevailing wind was from the northwest in Montana, west in Wyoming, southwest in Missouri, south in Nebraska, Iowa, and Kansas, and southeast in North Dakota, South Dakota, and Colorado.

TABLE 1.—Climatological data for August, 1909. District No. 6, Missouri Valley.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.
Wyoming.																			
Arapahoe	Fremont	5,500	4							1.08		0.60	0.0	7					David Malloy.
Barnum	Johnson	3,856	10	75.0	+ 2.3	104	15	46	23	50	0.00	- 0.24	0.00	0.0	0	24	6	1	Thos. Freeguard.
Basin	Big Horn										1.80		0.36	0.0	15	11	18	2	O. J. Robertson.
Bennett	Carbon										1.40	- 0.07	0.48	0.0	12	8	19	4	Chas. C. Young.
Cheyenne	Laramie	6,088	38	68.2	+ 2.4	88	15	47	29	39	1.40		0.36	0.0	8	6	25	0	U. S. Weather Bureau.
Cheyenne Exp. Farm	do	6,000	3								1.12		0.43	0.0	3	7	24	0	Irrigation Inves. Office.
Chugwater	do	5,282	8	69.3	+ 3.4	95	23	40	21	50	0.70	- 0.47	0.40	0.0	3	7	24	0	George Milne.
Clark	Big Horn	4,320	4	72.4		97	151	43	28	35	0.37		0.18	0.0	3	20	10	1	Chas. A. C. Snow.
Crystal Lake Reservoir	Laramie	6,900									0.58		0.27	0.0	5				L. E. Jensen.
Douglas	Converse	4,793		74.2		100	15	49	31	41	0.25		0.70	0.0	8	12	18	1	Henry C. Miller.
Dubois	Fremont	6,909	3	59.0		80	14	32	28	44	1.25		0.52	0.0	1	14	7	0	Dr. F. H. Welty.
Eaton's Ranch	Sheridan	4,600	4	71.2		97	15	43	28	43	0.52		0.75	0.0	3	29	2	0	F. A. Eaton.
Echeta	Crook										1.77		0.79	0.0	8				M. R. Hunter.
Elk Mountain	Carbon		4								1.71		0.79	0.0	8				Wm. Richardson.
Encampment	do	7,322		65.2		87	15	43	28	33	1.46		0.65	0.0	14	10	8	12	U. S. Forest Service.
Ervay	Natrona			66.3		92	15	40	28	40	2.27		0.88	0.0	8	16	13	2	Frank Jameson.
Filmore	Albany	7,527	3								2.80	+ 1.38	0.70	0.0	8				Jas. Dougherty.
Fort Laramie	Laramie	4,270	32	75.6	+ 4.0	101	11	47	30	47	0.57	- 0.39	0.24	0.0	6	18	12	1	John Hutton.
Gillette	Crook	4,546	3	73.9		101	41	44	28	44	3.52		2.11	0.0	4	21	3	5	S. D. Perry.
Granite Canyon	Laramie	7,337	4	63.0		83	11	36	29	43	1.87		0.93	0.0	7	14	14	3	Wm. Boyce.
Hunter's Station	Johnson	8,000	3	59.4		85	5	28	28	48	1.73		0.60	0.0	7	18	12	1	August Hettinger.
Hyattville	Big Horn	6,632	10	70.4	+ 1.9	99	15	35	28	44	0.00		0.00	0.0	0	20	8	3	Wm. Booth.
Independence	Natrona			64.7		95	15	37	29	50	1.93		0.75	0.0	5	17	11	3	Henry D. Schoonmaker.
Kayce	Johnson		8		+ 4.6	101	15	38	27	37	1.37	+ 0.33	0.91	0.0	3	29	2	0	A. Grigg.
Kirtley	Converse		5	70.2	+ 3.5	95	15	43	3	44	1.22	- 0.73	0.82	0.0	4	26	4	1	D. M. Zum Brunnen.
Kirwin	Big Horn	9,187	1	53.0		73	15	19	24	44	3.64		0.90	0.0	11	13	12	6	C. L. Tewksbury.
Knowles	Crook										2.03		1.52	0.0	6				G. A. Knowles.
Lander	Fremont	5,372	17	68.2	+ 2.5	96	4	39	29	48	1.33	- 0.79	0.89	0.0	7	11	18	2	U. S. Weather Bureau.
Laramie	Albany	7,188	18	64.2	+ 2.4	88	15	39	3	43	1.87	+ 0.74	0.73	0.0	12				University of Wyoming.
Leo	do	6,878	8	66.0	+ 2.8	89	15	34	25	46	0.72	+ 0.22	0.27	0.0	5	15	13	3	C. A. Cowdin.
Lolabama Ranch	Big Horn	7,052	6	58.3	+ 1.9	86	16	30	29	46	0.65	- 0.88	0.50	0.0	2	14	17	0	Mary E. Painter.
Lovell	do		4	71.6		97	20	38	28	50	0.08		0.06	0.0	2	21	6	4	R. Fred Harrison.
Lusk	Converse	5,007	19	69.4	+ 2.4	94	15	43	19	45	1.53	+ 0.38	1.00	0.0	2				D. E. Goddard.
Luther	Laramie										2.45		0.44	0.0	10				Henry D. Colburn.
Manville	Converse	5,050									0.68		0.36	0.0	4	27	4	0	C. A. Sherman.
Moorestown	Crook	4,211	6	74.4	+ 5.3	103	15	47	18	48	0.92	- 0.79	0.92	0.0	1	19	11	0	Jas. K. Somers.
Moore	Albany	6,000	8	67.7	+ 3.0	91	1	40	29	46	2.41	+ 0.90	0.50	0.0	13	7	19	4	Edwin Moore.
Newcastle	Weston	4,319	2	76.5		101	15	48	3	52	1.91		1.65	0.0	4	24	7	0	Dr. S. W. Johnson.
Pathfinder	Natrona	5,735	3	69.8	+ 0.4	93	15	38	27	48	1.93	+ 1.11	1.23	0.0	6	19	10	2	U. S. Reclamation Service.
Phillips	Laramie	4,900	6	69.2	+ 2.6	92	11	40	31	44			0.50	0.0		11	10	0	Mrs. Arthur Rugg.
Pine Bluff	do	5,038	9	73.0	+ 3.9	98	51	47	3	43	1.01	- 0.47	0.56	0.0	3	15	16	0	C. W. Johnson.
Powell	Big Horn	4,376	2	72.8		98	15	41	29	50	0.08		0.63	0.0	3	20	7	1	U. S. Reclamation Service.
Riverton	Fremont											+ 1.02	1.07	0.0	10	10	14	7	Robert P. Quest.
Saratoga	Carbon	7,300	12	64.8	+ 1.6	87	41	39	281	42	2.07	- 0.55	0.10	0.0	7	15	12	4	Supt. S. & E. R. R.
Sheridan (1)	Sheridan	3,790	14	68.2	+ 1.9	99	15	36	25	52	0.20	- 0.75	0.00	0.0	0	18	11	1	U. S. Weather Bureau.
Sheridan (2)	do	3,738	14	68.1	+ 1.8	98	15	35	28	54	0.00		0.20	0.0	6	13	17	1	Geo. Brundage.
Shoshone Dam	Big Horn	5,385	3	72.2		98	16	40	28	40	0.58		0.03	0.0	2	16	10	5	U. S. Reclamation Service.
Soldiers' Home	Johnson	4,635	17	74.2	+ 6.1	103	18	50	71	42	0.65	- 0.77	0.03	0.0	2	16	10	5	Geo. L. Courtney.
South Pass City	Fremont			57.6		83	15	29	301	47	0.65		0.28	0.0	8	9	16	6	John Sherlock.
Thermopolis	do	4,350	7	73.1		103	15	41	25	55	0.92		0.67	0.0	4	23	7	1	A. L. Dubig.
Upton	Weston										1.69		1.05	0.0	4	19	9	3	G. E. McPherson.
Valley	Big Horn	6,500									1.14		0.41	0.0	6	14	15	2	Jas. L. McLaughlin.
Verona	Sheridan										0.52		0.52	0.0	1	20	11	0	O. A. Roode.
Wiley	Big Horn	5,375		71.0		96	14	40	28	43	0.59		0.18	0.0	7	18	10	3	C. D. Marshall.
Wynote	Laramie	4,207	2	73.4		96	23	49	20	42	1.27		0.95	0.0	5	12	11	6	U. S. Reclamation Service.
Yellowstone Park	National Park	6,200	22	62.6	+ 1.7	84	17	31	28	45	0.70	- 0.32	0.35	0.0	6	14	11	6	U. S. Weather Bureau.
(1) Fountain	do			56.1		87	4	20	28	55	0.90		0.37	0.0	4	22	6	3	U. S. Army.
(2) Grand Canon	do			53.6		75	4	24	29	50	0.63		0.29	0.0	7	11	0	20	Do.
(3) Lake Hotel	do	7,733	5	55.4		79	121	24	28	44	0.90		0.41	0.0	8	20	8	3	Do.
(4) Norris Geyser	do	7,525	5	55.2		82	18	20	28	51	0.84		0.65	0.0	4	17	12	2	Do.
(5) Riverside	do	6,500	3	58.2		86	181	22	28	56	1.12		0.50	0.0	5	23	6	2	Do.
(6) Soda Butte	do	7,000	4	57.8		88	15	18	28	59	T.		T.	0.0	0	23	6	2	Do.
(7) Sylvan Pass	do	7,000	2	56.4		84	101	26	281	55	1.20		0.50	0.0	5	20	8	3	Do.
(8) Thumb	do			57.2		88	111	26	28	50	1.39		0.33	0.0	6	21	9	1	Do.
(9) Tower Falls	do			60.6		89	15	24	28	57	0.40		0.20	T.	3	24	1	6	Do.
(10) Upper Basin	do	7,395	5					25	28		1.10		0.60	0.0	2	25	1	5	Do.
Montana.																			
Adams	Dawson		1	69.7		100	20	38	28	43	0.56		0.11	0.0	7	22	6	3	W. B. Ennis.
Adel	Cascade	5,200	11	63.0	+ 3.9	88	201	28	28	47	1.40	+ 0.25	0.68	0.0	5	21	4	6	B. F. Burch.
Agricultural College	Gallatin	4,700	10	63.9	+ 1.1	90	15	36	28	39	1.29	+ 0.44	0.36	0.0	8	21	2	8	Prof. E. Burke.
Augusta	Lewis & Clark	4,071	10	59.4	+ 4.1	88	20	26	28	53	0.09	- 1.48	0.09	0.0					



TABLE 1.—Climatological data for August, 1909. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days of .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Montana—Cont'd.																				
Cut Bank.....	Teton.....	3,700	11	62.8	+ 2.8	89	14	30	28	52	0.16	- 0.98	0.09	0.0	3	23	7	1	w.	Chas. N. Thomas.
Decker.....	Rosebud.....	3,400	5	69.8		100	61	32	26	59	T.		T.	0.0	0					Adam Anderson.
Deep Creek.....	Broadwater.....	4,200									0.97		0.50	0.0	5					Mrs. D. W. Maryott.
Delphine.....	Meagher.....	5,000									2.76		1.05	0.0	8	15	13	3	w.	Tracy L. Holliday.
Denton.....	Fergus.....		2	64.6		95	20	34	28	42	1.75		0.55	0.0	7	25	4	2	nw.	R. M. Chamberlain.
Dillon.....	Beaver Head.....	5,147	12	62.6	+ 0.2	87	61	32	28	47	0.81	- 0.79	0.17	0.0	8	15	8	8	sw.	J. E. Monroe.
Dirty Creek.....	Meagher.....	6,000									3.18		1.18	0.0	10	25	3	3	w.	Lewis Cameron.
Dry Creek.....	Broadwater.....	5,500									1.64		1.05	0.0	6	20	9	2	sw.	J. C. Stuart.
Dry Wolf Camp.....	Cascade.....	6,000									1.32		0.46	0.0	12	18	10	3	s.	Mrs. R. J. Eveleth.
East Gallatin River.....	Gallatin.....	6,300									1.14		0.18	0.0	12	24	6	1	w.	John Eberhart.
Ekalaka.....	Custer.....		8	73.7		101	151	34	28	47	1.03		0.68	0.0	3	28	1	2	e.	W. Freese.
Elkhorn.....	Jefferson.....	6,576									1.03		0.39	0.0	11	12	18	0	sw.	J. W. Skelton.
Evans.....	Cascade.....	4,900																		H. Thrasher.
Fallon.....	Custer.....	2,208	5	72.6		104	151	38	28	51	0.23		0.20	0.0	1	19	12	0	w.	Mrs. A. C. Gifford.
Family.....	Teton.....	3,950	1	62.2		90	15	30	28	57	0.20		0.53	0.0	11					U. S. Reclamation Service
Fish Creek.....	Silver Bow.....	8,500				78	20	28	28	38	1.41		0.20	0.0	8	20	9	2	w.	O. B. Tilton.
Fish Tail Creek.....	Carbon.....	5,000									1.70		0.83	0.0	8	20	8	3	nw.	O. E. Haskin.
Flathead Creek.....	Gallatin.....	6,000									0.60		0.30	T.	4	14	12	0	sw.	L. G. Brown.
Forsyth.....	Rosebud.....	2,514	3	76.1		103	28	38	28	65	0.60		0.25	0.0	2	24	6	1	sw.	Thos. M. Patterson, jr.
Fort Benton.....	Chouteau.....	2,630	30	67.8	0.0	98	20	36	27	46	0.35	- 0.52	0.25	0.0	2	24	6	1	sw.	River Observer.
Fort Shaw.....	Cascade.....	3,500	21	66.4	+ 1.7	93	20	30	28	50	0.15	- 0.75	0.15	0.0	1	17	13	1	sw.	U. S. Reclamation Service
Fort W. H. Harrison.....	Lewis & Clark.....	4,004	6	67.4		95	20	37	28	46			0.34	0.0	7	1	29	1	sw.	Post Hospital.
Foster.....	Yellowstone.....		1	72.5		105	15	34	28	56	0.32		0.18	0.0	5	21	8	2	e.	E. K. Bowman.
Garnett.....	Fergus.....	5,500	1	60.6		87	30	31	28	45	2.37		1.30	0.0	9	16	8	7	e.	J. E. Scally.
Glendive.....	Dawson.....	2,069	20	74.2	+ 3.2	100	1	39	28	50	0.63	- 0.32	0.49	0.0	4	24	5	2	nw.	W. B. Walker.
Goldbutte.....	Chouteau.....		4	65.4		90	20	35	28	48	0.18		0.17	0.0	2	21	10	0	sw.	J. T. Berthelote.
Graham.....	Custer.....		4										0.60	0.0	7	15	14	2	sw.	J. S. Rue.
Grayling.....	Gallatin.....	6,700	6	55.3		85	18	19	28	57	1.05		0.19	0.0	5	27	4	0	sw.	P. Kerzenmacher.
Great Falls.....	Cascade.....	3,350	18	68.6	+ 1.9	94	20	38	28	44	0.61	- 0.35	0.70	0.0	11	16	13	2	sw.	S. H. Bauman.
Half Moon Pass.....	Fergus.....	6,500									2.24		0.96	0.0	10	20	8	3	ne.	Thos. Stigen.
Half Way House.....	Broadwater.....	6,000									1.62		0.45	0.0	10	20	8	3	ne.	Gordon Deans.
Harlowton.....	Meagher.....	4,165	2	63.5		92	151	31	28	49	1.07		0.34	0.0	7	1	29	1	sw.	Jos. Muir.
Hassel.....	Broadwater.....	5,200									0.88		0.08	0.0	6	26	4	1	nw.	E. C. Albrecht.
Havre.....	Chouteau.....	2,505	29	67.8	+ 1.5	98	20	38	28	49	0.18	- 1.03	0.24	0.0	5	23	5	3	sw.	U. S. Weather Bureau.
Helena.....	Lewis & Clark.....	4,110	30	67.0	+ 0.7	92	20	38	28	40	0.42	- 0.26	0.66	0.0	10	23	5	3	ne.	U. S. Weather Bureau.
Highwood.....	Chouteau.....										1.67		0.20	0.0	4	27	4	0	w.	W. S. McCord.
Home Park.....	Madison.....										0.53		0.37	0.0	3	14	16	1	e.	H. L. Miller.
Huntley.....	Yellowstone.....	3,014	4	72.6		100	26	37	28	50	0.68		1.00	0.0	10				sw.	U. S. Reclamation Service
Jones Canyon.....	Gallatin.....	6,800									2.49		0.30	0.0	3	25	0	6	w.	Jas. McCune.
Jordan.....	Dawson.....		5	71.6		104	15	35	28	54	0.60		0.65	0.0	9	17	14	0	w.	W. S. Henderson.
Klein Smith Creek.....	Jefferson.....	6,000									1.29		1.57	0.0	10	12	15	4	nw.	Mrs. E. W. Mills.
Lewistown.....	Fergus.....	4,010	12	64.7	+ 1.7	95	15	34	28	48	2.73	+ 1.36	0.43	0.0	7	23	5	3	sw.	W. W. Watson.
Livingston.....	Park.....	4,488	11	69.4	+ 2.3	96	151	34	28	47	1.69	+ 0.74	0.44	0.0	4	13	13	5	sw.	Lewis Terwilliger.
Lodge Pole Creek.....	Sweetgrass.....	5,700									0.71		0.25	0.0	5	28	2	1	w.	F. G. White.
Lone Tree.....	Chouteau.....		5	68.2		96	20	37	28	42	0.85		0.91	0.0	13	9	16	6	w.	E. Wilson.
Lost Horse Creek.....	Meagher.....	5,800									2.13		0.10	0.0	5	21	5	0		C. M. Mason.
Lubec.....	Teton.....	5,046	1								0.32		0.07	0.0	3					U. S. Reclamation Service
Malta.....	Valley.....	2,240	3	71.74		103	15	46	6	48	0.32		0.23	0.0	7					F. E. Parent.
Meadow Creek.....	Madison.....	6,700									0.12		0.08	0.0	8					E. J. Parkinson.
Melstone.....	Fergus.....	2,903				105	201				0.85		0.27	0.0	6	25	6	0	ne.	Leon B. Clark.
Mildred.....	Custer.....										0.77	- 0.26	0.74	0.0	5	20	9	2	sw.	U. S. Weather Bureau.
Miles City.....	do.....	2,371	15	75.6	+ 4.1	104	4	42	28	43	0.77		0.56	0.0	4	24	0	7	w.	W. H. Edick.
Mill Creek.....	Park.....	5,500									1.04		0.15	0.0	8	15	15	1	sw.	Clyde Grove.
Moore.....	Fergus.....										1.54		0.90	0.0	9	16	5	10	s.	Emory Mudd.
Mudd Creek.....	Deer Lodge.....										0.51		0.08	0.0	6	24	2	5	sw.	Madison River Power Co
Norris.....	Madison.....	4,845	3	68.5		94	151	34	28	48	2.83		0.37	0.0	7	19	12	0	w.	F. L. Bryant.
Nye.....	Sweetgrass.....		1	58.8		86	15	26	5	53	0.28		0.49	0.0	5	24	3	4	w.	Robt. Olsen.
Olsen Creek.....	Jefferson.....	6,345									1.09		0.42	0.0	12	17	13	1	sw.	Mrs. Thecla Kiermeyer.
Pipestone Pass.....	Jefferson.....	7,000									1.06		0.95	0.0	1	30	1	0	w.	H. M. Cosier.
Poplar.....	Valley.....	2,020	25	71.6	+ 4.3	103	20	38	28	49	0.95	- 0.03	0.05	0.0	1	14	13	0	w.	W. H. Campbell.
Raymond.....	Teton.....	4,260	2	68.8		92	14	40	91	51	0.05		0.08	0.0	8	18	9	4	se.	E. A. Reber.
Rebbers Ranch.....	Carbon.....	6,000									0.38		0.56	0.0	8	17	9	5	e.	I. A. Draper.
Red Lodge.....	do.....	5,548	9	64.2		90	151	30	28	43	1.46		0.20	0.0	7	24	5	2	sw.	Henry Cramer.
Reese Creek.....	Gallatin.....	5,000									0.93	+ 0.21	0.72	T.	4	25	4	2	nw.	F. B. Elmer.
Renova.....	Jefferson.....	4,383	10	64.5	+ 0.1	93	15	31	28	53	1.20		0.50	0.0	7	23	0	8	w.	Milo Brooks.
Rimini.....	Lewis & Clark.....	7,900	1								2.11		0.42	0.0	12	17	13	1	sw.	H. W. Schertenberg.
Ryegate.....	Yellowstone.....	3,640									1.27		0.79	0.0	4	16	12	3	sw.	Jas. Woosley.
Sedan.....	Gallatin.....	3,155	2	62.0		90	15	32	28	45	1.27		1.00	0.0	5	22	7	2	w.	Mrs. H. L. Miller.
Springbrook.....	Dawson.....	4,500	8	72.0		103	201													

TABLE 1.—Climatological data for August, 1909. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
North Dakota—Cont'd.																				
Fullerton	Dickey	1,439	10																	F. O. Alin.
Haley	Bowman		1	70.4		99	20	37	28	51	0.73		0.37	0.0	6	22	9	0	sw.	Myra Hart.
Hettinger	Adams	2,253	2	75.8		97	5†	52	24	23	1.21		0.40	0.0	6	6	25	0		F. E. Ellickson.
Howard	Williams	2,275	2	68.4		100	20	35	28	51	0.87		0.79	0.0	3	20	11	0	se.	C. B. Ambsbaugh.
Jamestown	Stutsman	1,390	21	66.2	- 0.6	90	5†	34	29	40	3.23	+ 0.89	1.45	0.0	8	13	16	2	se.	L. B. Baldwin.
Kulm	Lamoure	1,966	4																se.	J. F. Brenckle.
Lamaine	Kidder		1	67.8		95	20	35	29	48	1.69		0.60	0.0	5	18	12	1	ne.	E. V. Virgin.
Lamoure	Lamoure	1,307	2																	A. H. Ormsby.
Manfred	Wells		1	68.5		95	13	32	29	46	2.19		1.30	0.0	9	17	11	2	se.	S. P. Crane.
Marmarth	Bowman		1								1.50		0.87	0.0	4	22	4	5	se.	H. H. McCumber.
Marstonmoor	Stutsman		1								4.39		1.93	0.0	6	18	8	8	se.	M. Dwyer.
Medina	do	1,796	4	68.5		93	12	30	29	44	4.71		1.40	0.0	5	9	15	7	se.	J. W. Hesser.
Medora	Billings	2,225	12	70.0	+ 1.7	108	22	36	31	62	3.84	+ 2.26	1.87	0.0	4	17	13	1	e.	J. P. Kidder.
Melville	Foster	1,590	11	67.6*	+ 0.8	97*	15	33*	31	38*	2.57	+ 0.69	0.55	0.0	7				se.	O. H. Opland.
Mott	Hettinger		2	72.0		100	19	36	28	52	0.64		0.34	0.0	8	20	8	3	e.	C. J. Hoof.
Napoleon	Logan	1,955	17	69.0	+ 2.1	94	1†	32	29	48	3.55	+ 1.10	1.66	0.0	4	18	4	9	e.	W. C. McKenzie.
New England	Hettinger	2,400	13	68.5	+ 1.8	95	18†	37	29	49	3.55	+ 3.73	1.80	0.0	8	18	12	1	e.	J. Christiansen.
New Salem	Morton	2,163	2	69.8		98	4†	35	28	44	3.03		0.40	0.0	5	19	10	2	se.	J. E. Goforth.
Orange	Adams		2	74.2		100	5†	39	31	45	0.94		0.50	0.0	2	22	6	3	ne.	T. A. McCann.
Palermo	Ward	2,200	5	70.7		99	20	39	29	41	0.75		0.63	0.0	6	19	10	2	sw.	B. C. Smith.
Steele	Kidder	1,857	13	69.2	+ 2.7	92	20	33	29	47	2.09	+ 0.10	0.92	0.0	5	22	7	2	se.	W. F. Adams.
Swartwood	Bowman		1								1.61		0.54	0.0	10	18	12	1	w.	W. R. Peterson.
Washburn	McLean	1,731	5	70.4		99	5	28*	31	45*	1.62		0.16	0.0	4	16	11	4	se.	U. S. Weather Bureau.
Williston	Williams	1,875	29	68.6	+ 0.7	99	20	37	28	46	0.22	- 1.09	0.92	0.0	5	19	12	0	se.	H. E. Timms.
Wishek	McIntosh	2,010	4	68.5		94	10	34	29	44	2.94									
South Dakota.																				
Aberdeen	Brown	1,300	20	73.0	+ 4.0	95	26	37	29	40	3.06	- 0.06	0.90	0.0	8	25	2	4	s.	D. G. Gallett.
Academy	Charles Mix		21	77.2	+ 4.7	102	16	44	29	38	4.60	+ 1.50	2.05	0.0	8	23	6	2	s.	I. T. Lothrop.
Alexandria	Hanson	1,352	21	75.8	+ 4.6	95	15†	43	29	36	4.64	+ 1.95	3.66	0.0	4	24	7	0	se.	W. S. Hill.
Andover	Day	1,476	1	72.6		94	11	37*	29	41*	3.50		1.47	0.0	7	11	15	5	se.	E. L. Stone.
Ardmore	Fall River	3,557	1								2.26		1.15	0.0	4	26	3	2	se.	C. G. Hurlbut.
Armour	Douglas	1,521	16	77.9	+ 6.0	103	16	40	28	45	4.79	+ 2.07	3.40	0.0	9	28	1	2	sw.	J. S. Bean.
Ashcroft	Harding	3,192	18	72.5	+ 3.8	105	20	38	28	50	0.73	- 0.60	0.49	0.0	5	29	1	1	se.	Thos. Ashcroft.
Belle Fourche	Butte	3,000	2	73.0		102	15	41	28	48	0.63		0.25	0.0	7	14	12	5	e.	W. H. McGinley.
Bowdle	Edmunds	1,995	15	74.1	+ 4.8	97	15	39	29	43	1.82	- 1.34	1.05	0.0	9	21	10	0	se.	C. T. Smithers.
Brookings	Brookings	1,636	22	73.9	+ 6.3	93	27	33	29	42	3.39	+ 0.66	0.88	0.0	8	17	9	5	s.	Prof. C. Willis.
Burke	Gregory		2	75.8		100	15	45	29	37	3.40		1.20	0.0	7	17	11	3	s.	James Connell.
Canton	Lincoln	1,248	14	75.2	+ 4.8	95	10†	36	29	41	2.27	- 0.53	1.75	0.0	4	28	2	1	se.	John H. Holsey.
Cascade Springs	Fall River	3,422	2	73.5		99	15	43	29	47	0.52		0.23	0.0	3	23	7	1	se.	Fred Norenberg.
Castlewood	Hamlin	1,685	4	72.2	+ 5.6	93	27	32	29	41	7.59	+ 5.66	3.66	0.0	8	15	5	11	s.	M. N. Bradley.
Centerville	Turner	1,229	5	76.4	+ 5.1	95*	15	38*	29	33*	1.84	- 1.64	0.58	0.0	9				sw.	Frank Williams.
Chamberlain	Brule	1,363	12	79.0	+ 5.4	103	16	54	31	37	4.51	+ 1.92	1.58	0.0	5	14	12	5	sw.	G. A. Fry.
Clark	Clark	1,779	16	73.4	+ 4.8	94	27	35	29	39	4.60	+ 1.82	2.00	0.0	7	21	9	1	se.	O. H. La Craft.
Clear Lake	Deuel	1,800	7	73.0	+ 5.8	95*	28	37*	29	44*	7.24	+ 3.27	3.56	0.0	4				sw.	L. F. Hanly.
Clifton	Sully		1																	
Cottonwood	Stanley		1	77.2		104	5†	48*	29	43*	0.39		0.17	0.0	4	21	5	5	se.	H. F. Chamberlain.
Daviston	Perkins		1	72.8		100	20	46*	3	46*	2.59		2.20	0.0	3	18	12	1	se.	S. W. Sussex.
Deadwood	Lawrence	4,535	1	68.2		95	4†	38	28	40	1.25		0.45	0.0	5	21	7	3	se.	G. G. Davis.
De Smet	Kingsbury	1,726	18	74.2	+ 5.0	95*	14	33*	29	43*	5.25	+ 2.82	4.00	0.0	4	25	5	1	se.	R. E. Grimshaw.
Dowling	Stanley	2,250	1	77.3		104	23	49	29	42	0.29		0.18	0.0	4	16	15	0	se.	J. O. Purinton.
Dumont	Lawrence	6,195	1								3.12		1.71	0.0	9	17	11	3	sw.	M. P. Dowling.
Elk Point	Union	1,127	11	78.4	+ 5.0	100*	16	43*	31	39*				0.0					se.	A. B. Wood.
Ellington	Perkins		1	72.0		95	20	44	28	44	2.32		1.85	0.0	8	18	8	5	se.	M. Hoffman, jr.
Englewood	Lawrence	5,723	1								7.00		2.87	0.0	7	17	8	6	se.	R. E. Sheriff.
Eureka	McPherson	1,884	1	73.6		97	21†	41	31	41	1.39		0.42	0.0	7	23	7	1	ne.	E. E. White.
Fairfax	Gregory		7	77.1	+ 5.8	100	16	52*	29	40*	2.50	- 0.10	0.80	0.0	6	22	6	3	s.	W. D. Griggs.
Farmingdale	Pennington	3,000	14								0.82	- 0.34	0.70	0.0	3	24	7	0	se.	J. T. Murphy.
Faulton	Faulk	1,595	16	73.6	+ 4.9	95	23	43	29†	37	3.46	+ 1.13	1.24	0.0	6	24	4	3	se.	A. E. Nicholls.
Flandreau	Moody	1,565	20	73.2	+ 4.7	91	26†	39	29	34	3.58	+ 0.23	1.45	0.0	6	21	9	1	s.	Miss Belle Talcott.
Forestburg	Sanborn	1,231	19	75.7	+ 5.4	98	27	39	29	40	1.95	- 0.33	1.08	0.0	5	18	11	2	se.	G. A. Perley.
Fort Meade	Meade	3,624	29			100	15†				0.30	- 1.50	0.20	0.0	2	24	7	0	nw.	M. K. Judy.
Frederick	Brown	1,371	3	72.3		97*	1	30*	29	44*	1.79		0.94	0.0	3				se.	Post Surgeon.
Gannaville	Buffalo		12	77.2	+ 4.6	103	16	45	29	36	4.60	+ 1.64	3.10	0.0	5	18	12	1	sw.	J. E. Jeffers.
Greenmount	Lawrence	6,430	1								1.39		0.82	0.0	4	16	6	9	e.	V. P. Drips.
Greenwood	Charles Mix		15	78.8	+ 4.7	105	16	44	29	37	2.31	- 0.74	0.70	0.0	6	21	8	2	se.	John H. Leitel.
Hardy Ranger Station	Lawrence	6,600									1.13		0.59	0.0	5	25	0	6	w.	T. C. Williamson.
Hermosa	Custer	3,349	4	74.1	+ 6.4	101	23	47	28	43	0.90	- 1.35	0.42	0.0	6	16	15	0	se.	Mrs. Mary E. Seals.
Highmore	Hyde	1,800	16	76.0	+ 4.7	101	5	43	28	43	3.92	+ 1.5								



TABLE 1.—Climatological data for August, 1909. District No. 6—Continued.

Stations	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
South Dakota—Cont'd.																					
Selby	Walworth	1,400	1	75.6		96 <sup>d</sup>	16 <sup>†</sup>	43 <sup>a</sup>	31	41 <sup>a</sup>	2.01		0.87	0.0	6	24	5	2	se.	Miss Gertrude Hall.	
Sioux Falls	Minnehaha	1,400	20	75.8	+ 5.7	96	15	40	29	38	4.05	+ 1.07	1.40	0.0	7	16	7	8	se.	J. O. Bechtold.	
Spearfish	Lawrence	3,647		75.1	+ 5.5	99 <sup>b</sup>	15	46 <sup>b</sup>	28	44 <sup>b</sup>	0.71	- 0.85	0.37	0.0	3				se.	O. A. Martin.	
Stephan	Hyde	1,840	5	75.5	+ 5.7	103	1	39	29	47	3.11	+ 0.72	2.03	0.0	4	22	8	1	se.	Rev. A. Mattingly.	
Tama	Meade		1	77.0		108	5	41	28	48	0.30		0.18	0.0	4	17	7	7	se.	J. J. Daily.	
Vale	Butte	2,765	2	75.9		103	26	41	28	47	1.25		0.99	0.0	4	26	4	1		G. W. Shaw.	
Van Metre	Lyman																			Thos. H. Hill.	
Vermillion	Clay	1,222	8	77.5	+ 5.3	95	15 <sup>†</sup>	42	29	33	5.17	+ 2.30	1.38	0.0	5	28	2	1	s.	Prof. E. C. Perisho.	
Water's Ranch	Lawrence	4,000	1								1.09		0.45	0.0	3					Geo. Waters.	
Watertown	Codington	1,735	14	73.8	+ 7.1	95 <sup>†</sup>	27	35 <sup>†</sup>	29	40 <sup>†</sup>	4.55	+ 1.22	2.15	0.0	4					Robert Q. Wood.	
Wentworth	Lake		19	73.6	+ 4.4	93	15 <sup>†</sup>	40	29	35	4.50	+ 1.71	2.13	0.0	10	25	4	2	s.	R. C. Zimmerman.	
Wessington Springs	Jerauld	1,410	14								3.75		1.50	0.0	4	25	5	1		F. N. Dunham.	
White Lake	Aurora	1,646											1.19	0.0	10	10	17	4	se.	Mrs. G. A. Rogers.	
Yankton	Yankton	1,234	37	77.2	+ 4.4	96	16	44	29	33	3.56	+ 0.44		0.0	10	10	17	4	se.	U.S. Weather Bureau.	
Minnesota.																					
Pipestone	Pipestone	1,710	10	73.2	+ 4.9	91	27 <sup>†</sup>	36	29	37	3.19	- 1.23	0.95	0.0	9	14	16	1	s.	W. S. Campbell.	
Colorado.																					
Alma	Washington	4,650	7								3.09	+ 1.53	0.82	0.0	5					Ira M. Barnhouse.	
Akron	Park	10,238	12								4.68	+ 2.14	0.60	0.0	21	0	11	20		W. H. Powless.	
Arrriba (near)	Lincoln	5,239	3	70.8		91	5 <sup>†</sup>	50	29	38	1.58		0.70	0.0	5	19	12	0	sw.	C. S. Graves.	
Auldhusst	Teller	8,500																		Mrs. Alice A. Auld.	
Barker	Boulder	8,000	2								4.12		0.92	0.0	14	13	2	16	w.	E'n Colo. P. Co.	
Boreas	Park	11,489									4.47		0.63	0.0	17	0	19	12	nw.	Frank Soper.	
Boulder	Boulder	5,347	13	72.3	+ 1.8	90	15 <sup>†</sup>	51	29	31	2.42	+ 1.00	1.49	0.0	9	22	7	2	w.	S. A. Giffin.	
Burlington	Kit Carson	4,160	5	75.4	+ 3.4	97	27	56	6 <sup>†</sup>	34	0.82	- 1.58	0.60	0.0	2	18	7	6	se.	C. Creglow.	
Cassels	Park	8,445																		Harriet M. Cassell.	
Castle Rock	Douglas	6,220	18	65.9	- 0.8	89	6	40	31	41	2.34	+ 0.19	0.80	0.0	6					Chas. Hy. Ellis.	
Cheesman	Jefferson	6,890	6	66.8	+ 1.4	87	23	49	26	35	3.30	+ 0.90	2.33	0.0	14	18	11	2	n.	C. L. Adams.	
Cheyenne Wells	Cheyenne	4,279	16	74.2	+ 1.4	97	27	46	29	41	0.78	- 1.66	0.30	0.0	6	25	6	0	s.	J. B. Robertson.	
Como	Park	9,785	10																	Edwin Pike.	
Cope	Washington		11	74.6	+ 1.4	97	16	48	29	42	0.39	- 1.50	0.33	0.0	2	19	12	0	s.	A. A. Williams.	
Corona	Grand	11,690	2	48.4		64	15	34	29	24	5.25		1.10	0.0	18				w.	U. S. Weather Bureau.	
Denver	Denver	5,272	37	72.6	+ 2.2	93	6	54	29	34	2.13	+ 0.79	0.60	0.0	10	8	20	3	s.	U. S. Weather Bureau.	
Edgewater	Jefferson		1	70.8		94	14	50	1 <sup>†</sup>	41	3.36		0.70	0.0	10	23	7	1		Dr. J. B. Fish.	
Estes Park	Larimer	8,000									4.26		1.20	0.0	17	3	14	14	e.	Gaylord H. Thompson.	
Fort Collins	do	4,985	29	70.2	+ 2.2	93	5 <sup>†</sup>	47	26 <sup>†</sup>	43	1.45	+ 0.28	0.78	0.0	9	6	22	3	n.	Colo. Agri. College.	
Fort Morgan	Morgan	4,519	14	73.0	+ 0.7	96	6	51	26 <sup>†</sup>	41	1.89	+ 0.18	0.98	0.0	6	11	20	0	sw.	Della M. Scott.	
Frances	Boulder	9,300	4	62.0 <sup>a</sup>		80	1 <sup>†</sup>	40	29	35	6.24		1.36	0.0	16	2	26	3	w.	D. A. Barry.	
Fry's Ranch	Larimer	7,500		61.0		84	1 <sup>†</sup>	36	29	41	2.88		0.75	0.0	14	16	11	4	e.	Norman W. Fry.	
Georgetown	Clear Creek	8,550	8								3.44	+ 1.70	0.55	0.0	20	5	12	14		H. L. Corbett.	
Greeley	Weld	4,619	18	73.8	+ 3.7	96	4 <sup>†</sup>	49	26	43	0.86	- 0.10	0.23	0.0	8	24	7	0	ne.	Nelson Reynolds.	
Hartsel	Park	7,679									4.34		1.41	0.0	23	4	19	8		Emily Kleinknecht.	
Hawthorne	Boulder	6,000	1								1.93		0.52	0.0	11	26	5	0		B. L. Chesebro.	
Holyoke (near)	Phillips	3,745	13																	E. E. T. Hazen.	
Idaho Springs	Clear Creek	7,534	9	64.0	+ 2.2	83	23	41	28	34	3.25	+ 1.32	0.64	0.0	13				e.	J. J. Willis.	
Kcota	Weld	4,966																		E'n Colo. P. Co.	
Kossler	Boulder	7,720	2																	P. A. Taft.	
La Port	Larimer	5,053	18								2.89	+ 1.66	1.00	0.0	7					Chas. Green.	
Le Roy (near)	Logan	4,380	20	74.2	+ 2.9	97	5 <sup>†</sup>	50	30	43	2.14	- 0.04	1.10	0.0	6	9	20	2	se.	Geo. W. Johnson.	
Longmont	Boulder	4,989	7	71.6	+ 3.4	95	5 <sup>†</sup>	47	29	45	0.77	- 0.47	0.28	0.0	7	14	13	4		Enos A. Mills.	
Long's Peak (near)	Larimer	8,600	14	57.3	+ 2.5	79	22	33	3	38	2.99	+ 0.90	0.78	0.0	13	10	12	9	w.	J. D. Stead.	
Moraine	do	7,775	19																	Norman Steele.	
Platte Canyon	Jefferson	5,492	10								3.71	+ 1.53	1.10	0.0	12					Mrs. Phoebe A. Campton.	
St. Cloud	Larimer	7,750																		Dr. Edwin Lewis.	
Sedgwick	Sedgwick	3,573	1	76.0		101	23	48	20	41	3.65		3.20	0.0	2	18	12	1	se.	Chas. F. Deiminger.	
Sill Mine	Clear Creek	11,500																		Frank W. Murphy.	
Spicer (near)	Larimer	8,700									1.68	+ 0.52	0.68	0.0	9					P. H. Boothroyd.	
Waterdale	do	5,206	14	70.6	+ 2.8	93	15 <sup>†</sup>	46	29	43	3.96		1.32	0.0	10	12	6	13		G. E. Richardson.	
Westlake	Boulder		1								0.30	- 1.85	0.11	0.0	3	15	16	0	se.	J. C. Tuomey.	
Wray	Yuma	3,512	15	77.1	+ 3.7	101	16	48	29	42	1.26	- 0.94	0.75	0.0	6	17	3	11	se.	Geo. W. Custer.	
Yuma	do	4,138	18																	John M. Cotton.	
Nebraska.																					
Ainsworth	Brown	2,521	4	77.2		100	16	55	28	37	5.28		2.00	0.0	7	4	24	3	sw.	F. A. Pittenger.	
Albion	Boone	1,747										+ 0.10	0.50	0.0	4	20	11	0	se.	Agent, C. B. & Q. R. R.	
Allance	Boxbutte	3,968	14	73.9	+ 2.7	96	5	50	29 <sup>†</sup>	42	1.90	- 1.14	1.34	0.0	5	20	11	0	s.	W. A. Sharpack.	
Alma	Harlan	1,939	12	79.0	+ 3.0	103	16	44	29	41	1.93		0.75	0.0	6	11	19	1		W. Whitla.	
Anoka	Boyd		3	75.9		102	16	36	29	46	2.50		1.07	0.04	0.0	4	17	14	0	se.	J. L. Owen.
Arcadia	Valley	2,186									0.96	- 2.98	0.87	0.0	2	15	16	0	s.	A. S. von Mansfelde.	
Ashland	Sanders	1,100	19	80.3	+ 5.3	106	16	45	29	38	1.57	- 1.40	1.37	0.0	3	26	5	0	s.	Fred Rein.	
Ashton	Sherman	2,061									3.70		2.10	0.0	4					C. J. Wilson.	
Atkinson	Holt	2,108	4	74.8	+ 3.2	98	16	44	29	41	0.96	- 3.83	0.29	0.0	3	19	10	2		J. R. Huffman.	
Auburn	Nemaha	1,051	17	78.2	+ 5.4	104	15	44	30	42	0.35	- 2.21	0.52	0.0	4	26	3	2	s.	Agent, C. B. & Q. R. R.	
Aurora	Hamilton	1,792		81.0	+ 3.9	100	16	45	29	44	0.34	- 3.38	0.16	0.0	3	25	6	0	sw.	W. S. Waxham.	
Beatrice	Gage	1,235	18																		

TABLE 1.—Climatological data for August, 1909. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.	Prevailing wind direction.
Nebraska—Cont'd.																				
Dawson	Richardson	945	13	79.1	+ 2.2	102	16	45	30	42	0.47	- 3.18	0.33	0.0	3	26	3	2	s.	Mrs. E. I. Atkins.
Dubois	Pawnee	1,074									0.34	- 0.11	0.11	0.0	5	27	4	0	se.	O. M. Backus.
Duff	Rock										2.99	- 0.21	1.22	0.0	5	20	11	0	se.	Dewitt Eager.
Edgar	Clay	1,722									0.74	- 2.64	0.37	0.0	5	7	19	5		G. W. Ferree.
Ellis	Gage	1,430									0.70		0.50	0.0	2	0				D. J. Wood.
Elmer	Buffalo	2,268									1.42		0.90	0.0	4					E. L. Sutton.
Elm	Perkins	3,382									1.76		1.50	0.0	5					J. L. Brittain.
Enders	Brown		1	74.7		99	10	44	30	37	1.38		0.75	0.0	2	8	23	0	sw.	C. D. Langley.
Endicott	Jefferson	1,288									1.25		0.85	0.0	2	24	4	3		Agent, C. B. & Q. R. R.
Ewing	Holt	1,888	3	76.6		101	16	40	29	40	3.28	+ 0.40	0.85	0.0	6					G. H. Benson.
Fairbury	Jefferson	1,316	14	80.1	+ 4.3	103	16	46	29	42	2.34	+ 0.86	1.84	0.0	4	21	10	0	se.	W. F. Cramb.
Farmington	Fillmore	1,641	13	77.6	+ 3.9	101	16	54	29	38	0.70	- 2.75	0.35	0.0	4	21	3	7	se.	Agent, C. B. & Q. R. R.
Fort Robinson	Dawes	3,764	27	74.2	+ 3.8	100	51	49	3	45	0.87	- 0.69	0.47	0.0	4	22	3	6	sw.	Post Surgeon.
Franklin	Franklin	1,820	15	79.4	+ 3.8	104	16	42	29	42	1.25	- 1.49	0.45	0.0	4	17	14	0	se.	D. T. Shoemaker.
Frederick	Dodge	1,203	27	78.0	+ 5.1	100	16	44	29	42	1.89	- 1.89	1.65	0.0	4	23	8	0	se.	Ernest Hahn.
Fullerton	Nance	1,629	3	77.0		101	16	44	29	39	3.07	- 0.71	2.37	0.0	4	24	7	0	se.	Dr. F. W. Johnson.
Geneva	Fillmore	1,632	17	78.7	+ 4.0	104	16	45	29	38	0.50	- 2.69	0.43	0.0	3	24	7	0	se.	F. M. Flory.
Genoa	Nance	1,584	34	76.4	+ 3.1	100	16	44	29	39	2.55	- 0.46	1.40	0.0	4	22	9	0	se.	F. W. Parsons.
Gardner	Sheridan	3,550	1	73.0		99	5	44	20	44	4.74	+ 3.06	2.60	0.0	5	17	14	0	se.	G. F. Williams.
Gasper	Gasper										0.36	- 2.41	0.23	0.0	3	18	13	0	se.	E. H. Stoll.
Gothenburg	Dawson	2,557	15	77.5	+ 4.0	103	16	43	29	46	2.14	- 1.10	1.50	0.0	3	17	3	11	s.	W. J. Bartholomew.
Grand Island	Hall	1,890	17	78.0	+ 4.0	100	141	45	30	35	1.70	- 2.10	0.50	0.0	5	17	4	10	s.	E. A. Barnes.
Grant	Perkins	3,405	5	76.0	+ 3.6	102	23	45	29	49	1.15	- 0.99	0.62	0.0	5				se.	Cyrus Carver.
Greeley	Greeley	2,021	2	77.6		100	101	40	29	47	1.73	- 0.62	0.56	0.0	6	18	13	0	se.	W. E. Morgan.
Guided Rock	Webster	1,646									0.98	- 1.85	0.38	0.0	4	15	12	4	s.	J. S. Marsh.
Haigler	Dundy	3,258									1.19	- 1.15	0.83	0.0	3	10	15	6	se.	Agent, C. B. & Q. R. R.
Halsey	Thomas	2,635	6	78.4	+ 5.1	100	111	52	31	40	2.97	+ 0.44	1.62	0.0	5	30	1	0	se.	U. S. Forest Service.
Hartington	Cedar	1,209	18	75.8	+ 4.6	98	16	40	29	38	3.35	- 0.33	1.20	0.0	7	17	7	7	n.w.	D. E. Ewing.
Harvard	Clay	1,812	19	78.0	+ 4.4	103	16	47	30	39	0.88	- 2.29	0.37	0.0	5	23	8	0	se.	Dr. J. T. Fleming.
Hastings	Adams	1,932	16	78.4	+ 4.1	100	121	50	30	39	2.50	- 0.92	1.52	0.0	6	27	4	0	se.	Agent, C. B. & Q. R. R.
Hayes Center	Hayes		5	77.7	+ 3.7	102	16	49	30	41	3.56	+ 0.35	1.50	0.0	10	17	14	0	se.	C. A. Ready.
Hay Springs	Sheridan	3,821	22	73.0	+ 3.6	97	23	45	29	41	3.66	+ 1.63	2.93	0.0	4	14	17	0	s.	A. Kadlec.
Hebron	Thayer	1,458	24	79.2	+ 4.4	103	16	47	29	41	0.47	- 2.87	0.36	0.0	4				se.	C. M. Easton.
Hendley	Furnas	2,231									1.18	- 1.56	0.52	0.0	5				se.	F. A. Jones.
Holdrege	Phelps	2,324	15	79.2	+ 3.8	102	101	50	29	38	2.28	- 0.68	1.69	0.0	4	22	3	6	se.	Agent, C. B. & Q. R. R.
Hooper	Dodge	1,228	12	78.4	+ 4.8	101	16	42	29	37	1.79	- 2.08	0.95	0.0	5	21	10	0	se.	T. W. Lyman.
Imperial	Chase	3,278	20	76.6	+ 2.7	101	23	45	29	41	1.59	- 1.12	1.39	0.0	3	4	25	2	se.	Robt. Malcolm.
Kearney	Buffalo	2,146	17	78.4	+ 3.3	100	101	45	29	38	1.00	- 2.01	0.54	0.0	2	21	10	0	sw.	N. C. Dunlap.
Kimball	Kimball	4,097	21	72.2	+ 2.2	95	6	47	30	4	2.16	+ 0.70	0.78	0.0	7	19	12	0	se.	F. J. Bellows.
Kirkwood	Rock		14	77.2	+ 5.4	105	16	44	29	42	3.70	+ 0.25	2.18	0.0	9	23	6	2	s.	Mrs. C. Arter.
Kowanda	Denell										0.65		0.34	0.0	4				se.	Geo. W. Hulst.
Leavitt	Dodge	1,228																	se.	W. T. Seilley.
Lexington	Dawson	2,385	20	76.4	+ 4.1	99	16	43	29	38	3.41	+ 0.37	1.75	0.0	6	25	1	5	s.	Robt. Chadwick.
Lincoln	Lancaster	1,189	24	80.1	+ 5.8	103	16	47	29	36	1.24	- 2.47	1.10	0.0	3	13	11	7	s.	U. S. Weather Bureau.
Lodgepole	Cheyenne	3,820																	se.	
Loup	Sherman	2,067		75.0	+ 2.5	100	27	50	291	40	1.83	- 1.91	1.02	0.0	3	22	7	2	s.	C. H. Cass.
Loyal	Custer										3.90		3.00	0.0	4	14	16	1	s.	S. W. Lightner.
Lynch	Boyd		17	78.7	+ 5.5	104	16	39	29	43	2.42	- 0.36	0.75	0.0	5	29	2	0	s.	C. G. Coglier.
McCook	Red Willow	2,506	9	78.3	+ 0.8	103	27	40	29	46	1.44	- 1.08	0.74	0.0	2	31	0	0	s.	L. L. Slagle.
McCool Junction	York	1,575									1.87	- 1.44	1.15	0.0	4				se.	Dr. F. A. Long.
Madison	Madison	1,585	15	76.4	+ 4.3	98	16	40	30	44	4.35	+ 1.03	1.50	0.0	5	23	6	2	se.	John Ellis.
Marquette	Hamilton	1,830									2.70	- 0.32	0.88	0.0	8				se.	J. A. Amsherry.
Mason City	Custer	2,257									2.49	- 0.99	2.05	0.0	2				se.	Joel Hull.
Minden	Kearney	2,160	26	78.1	+ 4.6	102	26	44	291	44	1.67	- 1.93	0.90	0.0	7	16	13	2	s.	U. S. Reclamation Service
Mitchell	Scottsbluff		1	74.0		97	23	48	3	44	3.76		2.67	0.0	8	15	16	0	se.	Wm. Webster.
Monroe	Platte	1,525									2.61	- 0.85	1.43	0.0	7	24	5	2	se.	Agent, C. B. & Q. R. R.
Nebraska City	Otoe	941	27	78.6	+ 4.3	100	151	52	30	36	0.17	- 3.42	0.17	0.0	1	21	9	1	s.	Dr. P. H. Salter.
Norfolk	Madison	1,532	24	76.2	+ 4.0	98	101	40	29	39	2.78	- 1.03	1.36	0.0	7	29	2	0	s.	W. G. Road.
North Loup	Valley	1,961	21	79.3	+ 6.8	102	27	55	19	36	0.95	- 1.70	0.65	0.0	2	23	8	0	s.	U. S. Weather Bureau.
North Platte	Lincoln	2,841	35	76.6	+ 4.4	97	11	48	29	38	1.24	- 1.22	0.60	0.0	7	16	13	2	se.	G. S. Clingman.
Oakdale	Antelope	1,722	21	75.3	+ 3.5	96	16	40	29	36	5.34	+ 2.49	2.64	0.0	11	18	13	0	s.	Agent, C. B. & Q. R. R.
Odell	Gage	1,278									0.42	- 4.05	0.20	0.0	3	17	14	0	s.	U. S. Weather Bureau.
Omaha	Douglas	1,103	39	79.5	+ 5.1	98	12	55	29	27	0.88	- 2.74	0.84	0.0	3	16	14	1	s.	James Milford.
Ord	Valley	2,062									1.87	- 1.06	0.81	0.0	5	15	9	7	s.	James McGeachin.
Oreola	Harlan	1,993									2.33		1.66	0.0	6					



TABLE 1.—Climatological data for August, 1909. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>Nebraska—Cont'd.</b>																				
Wauneta	Chase	1,080	3	79.1	...	106	16	41	29	51	2.75	-0.55	2.00	0.0	2	...	...	...	...	C. D. Fuller.
Weepingwater	Cass	1,313	13	79.4	+2.7	106	16	39	29	39	1.32	-2.41	0.66	0.0	4	29	2	0	se.	S. W. Orton.
Westpoint	Cumming	1,325	...	...	...	...	...	...	...	...	2.78	-1.58	1.23	0.0	6	30	1	0	s.	J. C. Elliott.
Wilber	Saline	1,380	...	...	...	...	...	...	...	...	0.49	-3.88	0.30	0.0	2	15	14	2	s.	Agent, C. B. & Q. R. R.
Winer	Cumming	1,186	...	...	...	...	...	...	...	...	1.13	-2.24	0.53	0.0	5	24	7	0	se.	Aoff & Deily.
Woodlawn	Lancaster	1,066	17	79.4	+3.7	105	16	46	29	40	1.38	-1.61	1.29	0.0	2	16	14	1	se.	H. C. Kendall.
York	York	1,066	17	79.4	+3.7	105	16	46	29	40	2.98	-0.23	2.15	0.0	6	27	4	0	se.	H. T. Gianque.
<b>Iowa.</b>																				
Afton	Union	1,212	14	77.4	+3.8	99	12	46	29	36	1.36	-3.07	1.36	0.0	1	25	5	1	sw.	N. W. Rowell.
Allerton	Wayne	1,513	17	77.2	+5.1	99	15	45	29	39	0.34	-6.48	0.21	0.0	2	27	2	2	sw.	Mrs. Geo. Shriver.
Alta	Buena Vista	1,513	6	75.2	+4.5	93	27	43	29	31	2.37	-1.60	0.84	0.0	8	19	12	0	s.	David E. Hadden.
Alta (near)	do.	...	...	...	...	...	...	...	...	...	2.96	-0.63	0.76	0.0	9	...	...	...	...	W. J. Minard.
Alton	Sioux	1,305	3	76.6	...	97	15	36	29	41	0.99	-0.70	0.0	0.0	4	27	2	2	se.	W. S. Slagle.
Atlantic	Cass	1,164	17	77.3	+6.0	98	15	44	29	37	0.44	-3.04	0.34	0.0	2	10	18	3	sw.	Thos. H. Whitney.
Audubon	Audubon	1,301	15	74.2	+2.4	97	10	37	29	38	0.41	-3.31	0.29	0.0	2	27	3	1	sw.	Geo. E. Kellogg.
Bedford	Taylor	...	...	...	...	103	16	42	29	43	1.37	-3.69	1.10	0.0	3	27	1	3	s.	E. E. Healy.
Chariton	Lucas	1,042	13	76.6	+3.5	97	15	44	29	35	0.82	-4.18	0.35	0.0	3	26	3	2	sw.	C. C. Burr.
Clarinda	Page	1,009	18	77.8	+3.6	102	15	43	30	45	0.95	-3.08	0.49	0.0	4	26	2	3	s.	H. S. Van Sandt.
Corning	Adams	1,117	16	75.9	+3.4	97	15	47	29	33	1.51	-2.70	1.37	0.0	2	15	15	1	s.	Jerome Smith.
Corydon	Wayne	1,101	15	78.6	+5.0	98	15	45	22	37	0.49	-3.83	0.33	0.0	2	22	7	2	sw.	Clara Miller.
Creston	Union	1,312	3	77.0	...	100	12	45	29	39	1.94	-1.16	0.0	0.0	4	23	4	4	se.	Edgar Stovall.
Cumberland	Cass	...	...	...	...	...	...	...	...	...	0.50	-3.48	0.50	0.0	1	30	1	0	sw.	J. H. Reppert.
Denison	Crawford	1,180	13	75.8	+3.9	94	14	56	30	32	0.71	-3.05	0.44	0.0	2	27	3	1	s.	W. C. Van Ness.
Elliott	Montgomery	...	...	...	...	95	12	44	29	31	0.54	-0.54	0.0	0.0	1	23	7	1	se.	Henry Barnes.
Hancock	Pottawattamie	1,113	2	78.2	...	98	15	43	29	40	0.53	-0.40	0.0	0.0	2	28	3	0	s.	G. C. Rogers.
Harlan	Shelby	1,192	9	75.8	+3.6	97	16	40	29	38	0.88	-3.34	0.49	0.0	2	11	19	1	s.	C. A. Reynolds.
Hopeville	Clarke	...	...	...	...	97	15	46	29	35	1.49	-2.32	0.66	0.0	4	17	12	2	s.	M. T. Ashley.
Inwood	Lyon	1,474	4	75.2	+3.3	96	16	38	29	40	2.70	-1.15	0.0	0.0	8	22	5	4	s.	F. B. Hanson.
Lamoni	Decatur	...	...	...	...	100	12	47	29	35	0.37	-0.37	0.0	0.0	1	29	0	2	s.	T. J. Fitzpatrick.
Larabee	Cherokee	1,266	17	74.9	+3.7	94	12	40	29	33	0.81	-2.67	0.25	0.0	6	21	9	1	sw.	H. B. Strever.
Le Mars	Plymouth	1,224	12	74.8	+3.3	91	27	39	29	31	1.43	-1.45	0.58	0.0	8	23	7	1	sw.	G. A. C. Clarke.
Lenox	Taylor	1,250	13	76.4	+3.5	96	16	48	28	32	1.50	-2.62	1.40	0.0	2	29	1	1	s.	J. L. Hurley.
Leon	Decatur	1,120	6	77.3	+4.2	98	15	48	29	34	1.54	-5.40	0.39	0.0	2	25	3	3	sw.	Morris Gardner.
Little Sioux	Harrison	...	...	...	...	99	16	43	29	36	1.57	-0.76	0.0	0.0	5	26	5	0	se.	Geo. H. Gibson.
Logan	do.	928	42	77.8	+5.1	98	15	41	29	39	2.96	-0.78	2.04	0.0	2	18	13	0	se.	Glen H. Stern.
Mt. Ayr	Ringgold	1,236	15	78.1	+4.1	99	15	48	29	36	1.38	-2.37	1.17	0.0	3	25	5	1	sw.	A. F. Beard.
Odebolt	Sac	1,356	10	78.0	+4.3	97	14	40	29	42	0.44	-3.16	0.30	0.0	3	27	3	1	s.	E. Starnes.
Onawa	Monona	1,051	8	79.0	+4.8	96	11	47	29	32	1.68	-3.46	0.80	0.0	5	30	0	1	s.	C. G. Perkins.
Pacific Junction	Mills	960	9	76.0	+2.5	98	12	41	29	36	0.65	-3.18	0.42	0.0	2	25	6	0	s.	H. H. McCartney.
Rock Rapids	Lyon	1,358	9	77.3	+7.0	97	29	34	31	48	0.75	-1.68	0.30	0.0	4	...	...	...	...	W. C. Wyckoff.
Sheldon	O'Brien	1,422	8	77.0	+5.7	101	15	36	29	37	1.63	-2.05	1.00	0.0	6	27	4	0	s.	Dr. A. W. Beach.
Sibley	Osceola	1,212	15	73.8	+4.9	93	15	40	29	41	1.45	-2.21	0.66	0.0	6	22	4	5	s.	Francis C. Doolittle.
Sioux Center	Sioux	...	...	...	...	94	15	42	29	33	1.07	-2.56	0.53	0.0	3	27	3	1	s.	J. Deruyter.
Sioux City	Woodbury	1,135	20	76.8	+4.2	96	27	43	29	32	3.02	+0.02	1.30	0.0	9	17	9	5	se.	U. S. Weather Bureau.
Thurman	Fremont	...	...	...	...	98	15	45	30	37	0.50	-3.89	0.20	0.0	3	20	11	0	sw.	C. R. Paul.
Washta	Cherokee	1,157	10	76.2	+3.6	97	27	43	29	47	1.92	-0.86	0.83	0.0	6	23	7	1	s.	H. L. Felter.
Woodburn	Clarke	961	9	75.7	...	98	15	42	30	40	3.15	-2.43	2.22	0.0	4	26	3	2	sw.	C. B. McDonough.
<b>Kansas.</b>																				
Abilene	Dickinson	1,157	14	...	...	102	16	46	29	37	0.59	-1.73	0.72	0.0	4	12	17	2	s.	J. H. Sherman.
Agricultural College	Riley	1,100	51	80.2	+3.4	102	16	46	29	37	0.59	-3.03	0.25	0.0	4	25	4	2	sw.	J. O. Hamilton.
Alton	Osborne	1,651	7	81.6	+4.4	105	16	47	30	43	1.08	-1.50	0.47	0.0	7	23	7	1	se.	H. A. Storer.
Atchison	Atchison	973	18	80.1	+4.3	99	16	41	30	28	2.70	-1.83	1.40	0.0	3	27	4	0	s.	M. F. Troxell.
Baker	Brown	1,182	9	76.3	+1.1	101	16	45	29	39	2.49	-1.75	1.54	0.0	2	12	6	13	s.	E. A. Bastien.
Beloit	Mitchell	1,383	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	W. H. Houghton.
Blakeman	Rawlins	2,894	1	77.2	+3.5	101	27	39	29	42	1.58	-1.00	0.65	0.0	7	22	7	2	se.	C. L. Henderson.
Blue Rapids	Marshall	1,105	3	...	...	100	16	46	29	39	0.53	-0.48	0.0	0.0	2	15	4	6	se.	M. Norton.
Centralia	Nemaha	1,256	...	...	...	103	16	46	30	43	0.73	-2.16	0.45	0.0	3	26	4	1	s.	L. E. Hazen.
Chapman	Dickinson	1,123	5	80.9	...	108	16	40	30	51	0.67	-3.59	0.47	0.0	2	14	12	5	s.	R. McShea.
Clay Center	Clay	1,203	8	80.4	+3.7	101	27	42	29	44	0.45	-2.00	0.25	0.0	3	18	11	2	se.	O. L. Slade.
Colby	Thomas	3,138	18	78.4	+3.8	103	16	49	29	35	0.37	-2.44	0.26	0.0	5	7	24	0	s.	R. M. Chelf.
Concordia	Cloud	1,398	25	79.8	+3.3	103	16	49	29	35	0.37	-2.44	0.26	0.0	5	7	24	0	s.	U. S. Weather Bureau.
Densmore	Norton	2,200	...	...	...	103	16	44	29	40	0.28	-0.21	0.0	0.0	2	18	12	1	s.	F. S. Griffith.
Dresden	Decatur	2,731	15	78.8	+3.4	102	16	50	29	37	1.99	-0.89	1.93	0.0	3	23	2	6	se.	Jacob Bock.
Ellsworth	Ellsworth	1,537	5	79.2	+1.5	107	16	50	29	41	1.63	-1.07	0.90	0.0	4	20	9	2	s.	George Seitz.
Enterprise	Dickinson	1,144	7	78.6	+6.7	105	15	49	30	43	1.29	-1.49	0.73	0.0	3	20	5	1	s.	G. F. Wagner.
Extridge	Wabasha	1,412	3	77.8	...	99	17	52	29	33	1.47	-0.83	0.0	0.0	3	20	10	1	s.	G. D. West.
Farmersburg	Lane	2,850	8	78.7	+2.5	1.2	16	45	29	43	0.99	-1.72	0.44	0.0	6	28	1	2	s.	C. M. Jennison.
Ft. Scott	Bourbon	857	13	78.6	+0.2	103	16	49	30	44	0.51	-3.69	0.38	0.0	4	26	0	5	se.	E. A. Shaver.
Frankfort	Marshall	1,146	15	79.2	+2.1	106	16	42	30	49	0.30	-4.93	0.20	0.0	2	17	14	0	sw.	E. C. Dunham.
Garnett	Anderson	950	3	79.6	...	105	17	55	30	42	1.27	-0.76	0.0	0.0	5	19	7	5	s.	J. S. McCartney.
Goodland	Sherman	3,687	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	G. L. Calvert.
Gove	Gove	2,750	20	79.8	+3.4	100	16	52	29	...	0.51	-1.55	0.22	0.0	4	11	17	3	se.	Jesse Royer.
Hanover	Washington	1,225	6	80.6																

TABLE 1.—Climatological data for August, 1909. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.		
Kansas—Cont'd.																			
Scott.	Scott.	2,971	3	77.8 <sup>a</sup>		107	12	53.1	20	40.1	0.47		0.35	0.0	2			s.	J. B. Loughran.
Topoka.	Shawnee.	997	23	79.8	+ 3.8	102	16	52	30	34	0.77	- 3.52	0.61	0.0	3	21	8	2	U. S. Weather Bureau.
Valley Falls.	Jefferson.	913	10	77.8	+ 2.4	98	16	49	30	35	2.62	- 1.57	2.00	0.0	4	27	3	1	Miss Nettie Maxwell.
Vinland.	Douglas.	880		78.8		98	16	43	30	42	1.18		0.82	0.0	5	20	9	2	A. Schick.
Wakeney.	Trego.	2,456	5	79.4	+ 2.4	103	16	49	29	38	0.69	- 1.71	0.48	0.0	4	28	1	2	A. S. Peacock.
Wallace.	Wallace.	3,303	39	78.0	+ 3.2	102	27	41	29	40	0.70	- 1.27	0.42	0.0	3	0	30	1	M. T. Griggs.
Wamego.	Pottawatomie.	1,002	16								0.73	- 3.91	0.60	0.0	3	19	11	1	M. L. Stone.
Missouri.																			
Albany.	Gentry.		2								0.30		0.20	0.0	2	26	4	1	W. E. Elder.
Amoret.	Bates.	850	0	77.0		108	17	40	30	49	0.39		0.28	0.0	3	17	9	5	C. L. Glassmire.
Appleton City.	St. Clair.	853	18	80.4	+ 3.0	107	17	54	30	39	0.94	- 3.32	0.60	0.0	3	28	3	0	T. C. Brown.
Arlington.	Phelps.	695	23																P. W. Andros.
Arthur.	Vernon.	767	16	79.2	+ 3.3	106	17	48	30	42	0.59	- 3.74	0.38	0.0	2	26	5	0	J. T. Armstrong.
Avalon.	Livingston.		24	79.5	+ 2.9	100	16†	48	30	42	0.38	- 3.79	0.38	0.0	1	27	4	0	F. G. Ashbaugh.
Bagnell.	Miller.	594	14																W. S. Brockman.
Bethany.	Harrison.	881	19	77.4		96	12†	56	21	36	0.00		0.00	0.0					W. H. Skinner.
Bolivar.	Polk.	1,070	21	78.4	+ 1.6	101	17	43	30	48	0.74	- 2.75	0.36	0.0	3	18	12	1	E. Waltz.
Boonville.	Cooper.	600	33								0.82	- 2.65	0.46	0.0	4	24	3	4	C. Randecker.
Brunswick.	Charitan.	651	30	80.8	+ 5.7	104	16	50	30	37	0.02	- 4.14	0.02	0.0	1	21	6	4	Louis Beneke.
Clinton.	Henry.	800	7	80.8		105	16	50	30	44	0.47		0.20	0.0	3	28	3	0	Dr. G. W. Menes.
Columbia.	Boone.	784	18	79.2	+ 4.5	98	17	52	30	36	0.06	- 2.98	0.06	0.0	1	20	10	1	U. S. Weather Bureau.
Conception.	Nodaway.	982	24	78.1	+ 4.5	101	16	50	29†	37	T.	- 4.14	T.	0.0	0	18	10	3	Fr. Adhelm Hess.
Darksville.	Randolph.	826	18	79.4	+ 3.9	98	27	51	29	36	0.00	- 3.00	0.00	0.0	0	29	2	0	W. H. Brodelus.
El Dorado Springs.	Cedar.	750	3	79.0		103	17	52	30	45	0.45		0.35	0.0	2	24	6	1	Samuel Graham.
Fairport.	De Kalb.	920	15								0.12	- 4.21	0.12	0.0	1	26	2	3	J. W. Lincoln.
Fayette.	Howard.	725	26	79.0	+ 3.0	98	16	51	30	37	0.22	- 2.86	0.22	0.0	1	27	2	2	T. Berry Smith.
Fulton.	Galloway.	818	18	78.8	+ 2.6	101	16†	42	30	51	0.06	- 3.34	0.03	0.0	4	27	3	1	Mrs. Ruth McKinney.
Gallatin.	Daviess.	803	16								0.17	- 4.37	0.10	0.0	2	28	2	1	Dr. W. P. Young.
Glasgow.	Howard.	618	30																J. J. Shaughnessy.
Grant City.	Worth.	1,130	17	78.0		101	15†	49	29	31	2.08	- 1.82	1.30	0.0	3	27	1	3	W. H. Campbell.
Harrisonville.	Cass.	912	37	80.2	+ 5.1	104	17	51	30	36	0.59	- 3.55	0.32	0.0	5	23	2	6	A. J. Sharp.
Hazelhurst.	Livingston.		16								T.	- 3.80	T.						W. H. Baker.
Hermann.	Gasconade.	482	35								0.16	- 2.81	0.14	0.0	2	22	5	3	C. T. Maushund.
Houston.	Texas.	1,280	17	77.6	+ 2.4	101	16†	46	30	49	0.81	- 2.76	0.55	0.0	2	9	22	0	E. Dempsey.
Huntsville.	Randolph.	790	6								0.60								F. H. Hammett.
Jefferson City.	Cole.	628	27	80.6	+ 4.0	104	15	49	30	40	0.38	- 2.32	0.23	0.0	2	26	2	3	Miss Emma Swift.
Kansas City.	Jackson.	963	21	80.5	+ 4.7	100	16	56	30	28	0.42	- 4.33	0.34	0.0	3	20	9	2	U. S. Weather Bureau.
Kidder.	Caldwell.	1,017	16	78.0	+ 3.7	99	16	50	29	31	1.21	- 3.10	0.80	0.0	5	27	3	1	J. F. Sharp.
Lamonte.	Pettis.	863	21	79.3		102	17	46	30	46	0.29	- 3.51	0.17	0.0	2	22	9	0	J. R. Wade.
Lebanon.	Laclede.	1,265	20	79.4	+ 3.1	98	17	51	29†	45	0.54	- 2.72	0.50	0.0	2	26	4	1	M. W. Serl.
Lexington.	Lafayette.	813	27	79.1	+ 3.6	100	16	45	30	34	0.61	- 2.79	0.38	0.0	3	28	0	3	J. W. Keithley.
Liberty.	Clay.	864	21	79.4	+ 3.3	101	16	51	30	38	0.32	- 4.04	0.31	0.0	2	24	0	7	J. W. Kyle.
Lockwood.	Dade.	1,088	14	80.0		104	17	52	30	39	0.24	- 3.90	0.24	0.0	1	27	2	2	C. S. Crow.
Marshall.	Saline.	779	18	79.0	+ 3.1	100	17	49	30	44	0.04	- 3.93	0.04	0.0	1	30	0	1	W. H. Black.
Marshfield.	Webster.	1,492	0																Dr. J. P. Keller.
Maryville.	Nodaway.	1,160	19	78.0	+ 3.8	100	12†	59	29†	36	0.52	- 4.30	0.52	0.0	1	27	4	0	J. R. Brink.
Mt. Vernon.	Lawrence.	1,490	33	79.8	+ 2.1	106	17	52	30	42	4.30	+ 0.21	4.00	0.0	3	16	15	0	Dr. O. H. Brown.
Nevada.	Vernon.	869	15								0.54	- 3.62	0.30	0.0	3	28	3	0	C. Jewell.
New Palestine.	Cooper.	795	17	80.2	+ 3.1	102	27	50	30	40	0.34	- 3.42	0.34	0.0	1	28	3	0	A. I. Zeigle.
Oregon.	Holt.	1,113	54	77.8	+ 2.8	99	16	50	29†	31	0.49	- 3.88	0.39	0.0	2	25	3	3	Tom Curry.
Osceola.	St. Clair.	738	9								0.40		0.20	0.0	2	28	2	1	W. E. Matthews.
Parkville.	Platte.		0								0.38		0.35	0.0	2	18	13	0	Prof. A. D. Wolfe.
Rolla.	Phelps.	1,092	28	80.2		101	16†	52	30	44	0.63	- 3.25	0.50	0.0	3	24	6	1	Prof. P. J. Wilkins.
St. Charles.	St. Charles.	614	31	81.2	+ 4.9	100	12†	52	30	42	0.09	- 2.95	0.09	0.0	1	24	6	1	L. C. Saeger.
St. Joseph.	Buchanan.	825	37	81.2		101	15†	50	30	37	0.42	- 3.52	0.26	0.0	4	27	4	0	Grant Forbes.
St. Louis.		567	39	81.1	+ 3.9	98	13	56	30	25	0.66	- 2.00	0.42	0.0	4	19	11	1	U. S. Weather Bureau.
Sublett.	Adair.	1,000	29	79.4	+ 5.2	98	15	44	30	35	0.05	- 3.33	0.05	0.0	1	19	9	3	Erres Spriggs.
Trenton.	Grundy.	812	14	79.0	+ 4.3	98	17	52	29†	35	0.10	- 3.72	0.10	0.0	1	23	3	5	J. H. Flesher.
Unionville.	Putnam.	1,072	16	78.0	+ 2.3	100	16	43	29	48	T.	- 4.47	T.	0.0	0	20	8	3	Geo. W. Davis.
Versailles.	Morgan.	1,021	8																
Warrensburg.	Johnson.	883	30	80.8	+ 4.2	103	17	49	30	40	0.57	- 3.05	0.42	0.0	3	25	6	0	Prof. S. F. Prince.
Warrenton.	Warren.	865	19	80.3	+ 3.7	102	13	50	30	39	1.26	- 1.58	0.84	0.0	4	23	4	4	John H. Frick.
Warsaw.	Benton.	700	5	81.8		107	17	43	30	51	0.25		0.15	0.0	3	21	9	1	Dr. J. R. Smith.
Wheatland.	Hickory.	920	17								0.13	- 3.45	0.13	0.0	1	28	2	1	Mrs. S. A. Jackson.

\* Precipitation included in that of the next measurement.

\*\* Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.

† Also on other dates.

‡ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

|| Estimated by observer.

¶ Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

\*, †, ‡, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.



Stations.	River basins.	Day of month.																														Total.			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
<b>Wyoming.</b>																																			
Arapahoe	Big Horn		.21				.06		.13											.02			.05	.01								.60	1.06		
Barnum	Powder		T.				T.		T.	T.	T.	T.																				T.	T.	0.05	
Basin	Big Horn																																T.	0.05	
Bennett	North Platte				.11	.05	.04	.02	.36	.02	.01	.20					.19	.32						.06	.12							.12	1.40		
Cheyenne	South Platte	T.	T.		T.		.32			T.	T.	.08	.08	.01			.05	.09	.01	.15		.03	T.	.47	.01			.10				.04	1.12		
Cheyenne Exp. Farm	do.				T.		.17			T.	T.	T.	T.					.09	.06	.03	.43			T.	.02	.22			.10			.07	0.30		
Chugwater	North Platte		T.				.10			T.	T.	T.					T.	.20				T.		.03	T.	T.					T.	T.	.10	0.37	
Clark	Clark's Fork	.18								T.	T.	T.					T.															T.	.20	0.58	
Crystal Lake Reservoir	South Platte						.07	.27									T.		.01				.03	T.								T.	.20	0.58	
Douglas	North Platte						.06																.03	T.									T.	.20	0.58
Dubois	Big Horn						.06									.05							.03	.21	.03									.70	1.25
Eaton's Ranch	Tongue						T.	T.		.75	.75	.27					T.																	.82	1.77
Echeta	North Platte						.36			.18				.06				.79					.06	.03									.23	1.71	
Elk Mountain	do.						.01	.07	T.	.01	.01	.10	.14	.18			.15	.65	T.				.05	.02					.02		.03		.02	1.46	
Encampment	do.						T.	T.	T.	T.	.08		.70	.05			T.	T.					T.	.07		.06					.35	.08	2.27		
Erway	do.	T.	.08		T.		.09			.08	.26						.51	.70	.51							.40							.25	2.80	
Filmore	do.						T.	.05	.08	T.				.07				.24				.08			.05								T.	2.80	
Fort Laramie	do.						T.	.09																										T.	2.80
Gillette	Powder						.09		2.1																										

TABLE 2.—Daily precipitation for August, 1909. District No. 6—Continued.

Stations.	River basins.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		31
Montana—Cont'd.																																	
Dry Wolf Camp.	Missouri	.27					.01	.14	.17		.01	.01		.02							.03			.46	.17		.01			.02		1.32	
E. Gallatin River	Gallatin	.10	.12		T.		.05	.07		.09	.05	.10	.18									.10	T.		.17			.06		.05		1.10	
Elkalaka	Little Missouri							.68	.23	.12																						1.03	
Elkhorn	Jefferson																																
Evans	Missouri																															0.23	
Fallon	Yellowstone						.23							T.																		0.20	
Family	Marias						.20																										
Fish Creek	Jefferson							.05	.08	.02		.01	.20																			0.30	
Fish Tail Creek	Yellowstone	.03	.08					.11	.19			.10	.05	.02											.83							1.70	
Flathead Creek	do.	.36		.04																												0.60	
Forayth	do.		T.		.10	.30			.10				.10	T.	T.																	0.35	
Fort Benton	Missouri																															0.15	
Fort Shaw	Sun River									T.	T.	T.											.15		T.							0.32	
Foster	Big Horn						.18				.01	.06	T.	.06																			
Garnell	Musselshell																																
Glendive	Yellowstone		T.					T.	.07	T.			.04		.03	.49																	0.63
Goldbutte	Marias											T.		T.										.17		T.			T.	.01	.47		0.18
Graham	Powder	.02																															
Grayling	Madison	.60										.04		.03	.07																		
Great Falls	Missouri	T.									.05	.19		.04																			
Half Moon Pass	Musselshell	.01		.01			.03	.50	.02	.02	.70	.02	.20												.70			.03					
Half Way House	Missouri	.12					.02	.09	.11				.07										.10		.02	.94			.14			.01	
Harlowton	Musselshell			.38			.09						.15	.07													.45						
Hassel	Missouri	.04					.12	.13				.08	.12													.34	.05						
Havre	Milk River	.01					.01			.01												T.	.08		.05			T.	.02				
Helena	Missouri	.03						.02		.04			T.	.09											T.	.24							
Highwood	do.	.33					.66	.03		.10		.01	.08										.20		.23	.01			.02				
Homepark	Jefferson						.08	T.		.10		.20														.15							
Huntley	Yellowstone						.07					.24	.37																				
Jones Canyon	Gallatin	1.00		T.		.10	.10	.20	.10	.09	.10	.20	T.																			T.	
Jordan	Missouri						.30	.13																		.17							
Klein Smith Creek	Jefferson	.34						.09	.03	.02		.03	.02													.65			.01	.10			
Lewistown	Missouri						.08	.24	.02	02	1.57	.05	.03													.40	.27		.05				
Livingston	Yellowstone	.43	.10	T.			.15			T.		.31	.14													.38	.18						
Lodge Pole Creek	do.	T.					.20	.04				.44	.03																			T.	
Lone Tree	Missouri						.25	.15				.20																					
Lost Horse Creek	Musselshell	.19			.08	.01		.91	.05	.10		.07	.03	.03																		T.	
Lubec	Marias																																
Malta	Milk River																																
Meadow Creek	Madison									T.			.01																				
Melstone	Musselshell				.06							.17	.23	.13												.04			.07				
Mildred	Yellowstone																									.09	.15			.02			
Miles City	do.	T.	.02	T.	.04		.24			T.	.10	.10	.27																				
Mill Creek	do.	.74			.05		.10	.02					.13																				
Moore	Missouri						.56			.20																							
Mudd Creek	Jefferson	.10						.04		.10			.01													.15							
Norris	Madison	.10	.15					.15		T.	.11	.06		T.																			
Nye	Yellowstone	.06					.04				.04		.08														.90	.80	.06	.50			
Olsen Creek	Jefferson	.49					.09	.07																			.03						
Pipestone Pass	do.	.09					.02	T.	.09	T.	.09	.18		T.													.39			.05			
Poplar	Missouri		T.				T.	.95					T.														.37			.22		T.	
Raymond	do.										.05																T.	T.	T.				
Reber's Ranch	Yellowstone																																
Red Lodge	do.	.04	.04				.08	.06	.02	.07			T.														.02						
Reese Creek	Gallatin	.10	.26				.04	.32		.04	.04	.10																.56					
Renova	Jefferson	.05	.10				.12	T.	.20		.18		T.														.18			.10			
Rimini	Missouri	.31																									.72			.06			
Ryegate	Yellowstone					.20	.33			.50	.45	.50	.08	.05																			
Sedan	do.	.10	.16	T.		.05	.10		T.	.08	T.	.20	.10	T.																			
Springbrook	do.						.05	.10		T.	T.		.79	T.																			
Stearns	Missouri										.04	1.00																					
Tokna	Yellowstone	.01									.12	.22		.10																			
Toston	Missouri																																
Townsend	do.										</																						



Stations.	River basins.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
North Dakota—Cont'd.																																	
New England.	Cannon Ball.	1.80					1.80			1.45	T.	T.	.30												T.							5.35	
New Salem.	Heart.	T.				T.	.20	.05			1.15	T.	.90	.05	.28		.05							.35								3.03	
Orange.	Cannon Ball.							.06			T.			.40	.15			T.						.28	.05							0.94	
Palermo.	Missouri.	T.								.25															.50							0.75	
Steele.	do.	T.		.47	.08			.53		.63					.17									.21	.03							2.09	
Swartwood.	Grand.	.06			T.			.11		.49		.92				T.								T.								1.61	
Washburn.	Missouri.	.03		.02			.04	.20		.05	.54		.20		.28		.02							.24								1.62	
Williston.	do.	.02					T.	.04																.12	.04			T.				0.22	
Wishek.	do.	.25		T.				.20							.92		.82							.75								2.94	
South Dakota.																																	
Aberdeen.	James.		.60				T.	.40	.60	T.	.10					.33		.90						.06	T.	.07						3.06	
Academy.	Missouri.	.39					T.	.52	.08	1.36			T.									2.05		.06	.04							.09	4.64
Alexandria.	James.	.78						2.34	1.32					.20																		4.50	
Andover.	do.	.45						.55	.20				.75			.05	1.47								.03							3.26	
Ardmore.	Cheyenne.	.05						.23		.83													1.15									2.70	
Armour.	Missouri.	.69						3.40	.16			.30	.05										.03	.07		.08						.01	0.73
Ashcroft.	Little Missouri.	.05	.04				.02					.13		.49			T.							T.	.02							T.	0.63
Belle Fourche.	Cheyenne.	T.					.07	.09	.15	.25	.02		T.	.03											.15	.08							1.82
Bowdle.	Missouri.	1.05		T.	.05		.23	.05	.07	T.			.04	.10											.18								3.39
Brookings.	Big Sioux.		.63					.88	.49	.48		.32	.28	.13									1.20			.18							3.40
Burke.																																	

### MONTHLY WEATHER REVIEW.

AUGUST, 1909

TABLE 2.—Daily precipitation for August, 1909. District No. 6—Continued.

[illegible]



TABLE 2.—Daily precipitation for August, 1909. District No. 6—Continued.

Stations.	River basins.	Day of month.																															Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Nebraska—Cont'd.																																	
Marquette.....	Platte.....	.08		.88					.18					.16				.32					.25					.02	.81			2.70	
Mason City.....	Loup.....												.13	.28	.90													.07			1.87		
Minden.....	Blue.....	.20	.03	.06	T.																											1.87	
Nebraska City....	Missouri..																						.17						T.			0.17	
Norfolk.....	Elkhorn... Loup.....			1.36 .65					.34					.43 .30	.24								.37 .02						.02			2.78	
North Loup.....	Platte.....	.39	.08					T.	.02		.08	.58		.30	.06			T.			.03					T.						0.95	
North Platte.....	Elkhorn... Missouri..		.99						2.64		.01			.27				T.					1.12 .03	.23					.04		.04		5.34
Oakdale.....	Loup.....			.84		.01				T.																						0.88	
Ord.....	Pawnee City. Plymouth.....		T.	.12	T.																								.12			0.00	
Pawnee City.....	Blue.....												.03	.02	1.50			.09						.69								2.93	
Plymouth.....	Loup.....		.23					T.	.26				1.17	.64	T.														.23			2.74	
Purdum.....	Republican.	.14		.12					.02						T.													.15	.62		.21	1.05	
Ravenna.....	Loup.....																																
Redcloud.....	do.....	.18		.67					.08	.08	.11			.28	.03								.11						.30			1.57	
St. Libory.....	Missouri..			.67					.20					.01									.13	.25			.01					1.34	
St. Paul.....	Loup.....	.30		.32										1.00	.30															T.		2.12	
Santee.....	Platte.....			1.60																										.21		1.81	
Sargent   .....	North Platte		T.				T.	.07										T.		.13				.05	T.							0.25	
Schuyler   .....	Blue.....		1.60																													1.93	
Scottsbluff.....	Loup.....	.40	.45						.70					1.00	.01							.53	.65						.33			3.76	
Seward   .....	North Platte							.05	1.12				.05					.03		.29				.03	.50	T.						1.57	
Sheridan.....	Nebraska ..		.80					.80	T.	.06				T.	T.			T.				1.00	.50	T.								3.16	
Sidney.....	Elkhorn... Republican	.12				2.05																					.55					2.72	
Springview.....	do.....																																
Stanton.....	Great Nemaha.			.16								T.						T.					T.		.43	.25			.06			0.22	
Stratton   .....	Missouri..			.75							.23							.03										.38				2.07	
Superior   .....	Little Nemaha.			.26														T.										.10				0.36	
Tecumseh   .....	Niobrara		T.	T.		T.	T.	.04					3.35	.01	.01								.67	.30	.01						.01	4.41	
Tekamah.....	Platte.....			1.14														.20					.08					.22				1.61	
Turlington.....	Elkhorn... Missouri..			.92					.26					.56										.41				.03				2.18	
Valentine.....	Missouri..																																
Wahoo.....	Republican	.75																													2.00	2.75	
Wakefield.....	Missouri..		.51	.66														T.										.14				1.32	
Walthill.....	Elkhorn... Missouri..		.75			.17	T.						.14	.32								1.23	T.					.17				2.78	
Watertown.....	Platte.....					.19		.21					.12	.08								.53	T.									1.13	
Wauneta.....	Blue.....	.01	2.15					.13						.03				T.					.11						.85			2.98	
Weepingwater.....	do.....																																
Westpoint.....	Great Nemaha.			.16								T.											T.					.06				0.22	
Wisner.....	Missouri..			.75														.03						.43	.25			.38				2.07	
York.....	Little Nemaha.			.26														T.										.10				0.36	
Iowa.																																	
Afton.....	Niobrara								.04																								
Allerton.....	Platte.....																																
Alta.....	Republican																																
Alta (near).....	do.....																																
Alton.....	Missouri..			.70					.15			.08	.06				T.																
Atlantic.....	Chariton...			.10													T.																
Audubon.....	Nishnabotna			.12																													
Bedford.....	do.....			.01																													
Charlton.....	Missouri..					.26																											
Charlton   .....	Chariton...					.32																											
Charlton   .....	Nodaway.....																																
Charlton   .....	do.....																																
Charlton   .....	Chariton...																																
Creston   .....	Missouri..			.02	T.			T.																									
Cumberland.....	Nodaway.....																																
Denison.....	Missouri..			.44																													
Elliott.....	Nishnabotna																																
Greenfield.....	Nodaway.....																																
Hancock.....	Nishnabotna			.40																													
Harlan.....	do.....			.39																													
Hopeville.....	Missouri..					.02																											
Inwood.....	Big Sioux			.46				.05	1.15	.13		.11		.01			.30																
Lamoni.....	Missouri..																																
Larrabee.....	Big Sioux																																
Le Mars.....	Little Sioux			.58				.22					.15	.25			.04												.11				
Lenox.....	Floyd.....							.32	.10		.13	.15	.11				.07												.02				
Leon.....	Missouri..					.10																											
Little Sioux.....	do.....																																
Logan.....	Little Sioux			.76																													
Mt. Airy.....	Missouri..		.92							T.																							
Odebolt.....	do.....					.18																											
Onawa.....	do.....			.30										.05																			
Pacific Junction.....	do.....			.80										.35																			
Rock Rapids.....	Missouri..			.42			T.																										
Sheldon.....	Big Sioux																																
Sibley   .....	Floyd.....																																
Sioux Center.....	Big Sioux			.66				.03	.35	.13		.38	.02																				
Sioux City.....	Floyd.....			.53																													

## MONTHLY WEATHER REVIEW.

**AUGUST, 1909**

TABLE 2.—Daily precipitation for August, 1903. District No. 6—Continued.

[illegible]



TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 6, Missouri Valley.

Date	Wyoming.																Montana.											
	Basin.		Cheyenne.		Fort Laramie.		Lander.		Newcastle.		Pathfinder.		Sheridan.		Yellowstone Park.		Billings.		Dillon.		Havre.		Helena.		Lewiston.		Malta.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	92	60	88	49	101	53	84	52	98	65	92	51	82	52	77	48	96	51	78	51	87	54	82	56	82	46	.....	.....
2...	96	57	83	58	92	64	76	51	86	66	88	52	76	51	70	48	86	54	82	52	78	58	77	57	87	44	.....	.....
3...	87	57	81	49	92	51	86	43	90	48	88	47	88	44	76	43	84	50	82	52	85	50	82	50	87	53	.....	.....
4...	95	60	84	50	97	56	96	48	96	65	93	50	94	49	81	46	96	47	85	51	88	53	90	52	89	53	.....	.....
5...	95	52	87	57	101	51	90	52	98	62	92	51	89	58	77	48	88	50	86	46	78	50	77	54	79	44	.....	.....
6...	98	60	86	55	90	53	77	55	87	58	82	56	73	57	79	44	88	50	87	40	70	38	73	48	69	50	.....	.....
7...	83	68	82	54	89	58	86	54	89	60	84	49	80	57	77	49	81	50	81	53	72	52	76	52	73	50	.....	.....
8...	90	60	80	58	92	59	90	53	85	58	86	43	77	52	78	47	80	54	80	49	81	49	81	48	76	48	.....	.....
9...	91	61	83	57	97	63	85	58	89	52	92	46	87	60	80	47	91	54	78	47	89	59	86	52	87	54	.....	.....
10...	96	60	84	53	95	63	86	54	96	60	90	51	85	62	79	55	96	61	76	40	94	62	86	62	90	55	.....	.....
11...	94	62	83	60	99	60	82	56	92	63	91	52	89	56	80	53	97	59	82	50	90	61	84	55	86	54	.....	.....
12...	96	60	85	56	97	59	87	52	91	64	88	47	90	62	81	49	92	58	80	46	91	56	87	57	87	53	.....	.....
13...	98	61	85	60	98	60	88	52	94	62	86	54	85	53	79	50	87	50	85	54	89	51	80	57	81	50	.....	.....
14...	94	54	85	56	98	72	90	48	96	68	90	57	92	51	84	43	93	49	84	53	93	50	89	49	89	47	.....	.....
15...	104	61	88	59	101	61	96	52	101	66	93	65	99	53	84	51	104	50	85	50	96	63	88	55	95	47	.....	.....
16...	100	71	86	59	95	65	85	58	90	72	90	67	86	54	82	48	94	50	84	54	83	52	82	52	90	44	.....	.....
17...	90	55	76	56	83	64	86	51	93	55	80	65	89	48	84	46	89	48	85	47	85	49	86	51	87	43	.....	.....
18...	93	61	76	54	91	61	87	52	94	58	86	54	91	50	82	47	92	49	87	49	88	53	88	54	80	44	.....	.....
19...	94	59	78	52	94	55	87	58	94	65	84	57	92	49	84	47	94	49	87	55	91	48	90	55	89	50	.....	.....
20...	93	57	76	50	91	49	88	47	95	60	86	54	95	51	82	53	104	49	80	44	98	49	92	54	94	50	.....	.....
21...	97	64	84	55	98	58	88	61	91	61	89	63	82	55	78	57	87	53	70	40	77	54	76	52	73	49	.....	.....
22...	90	56	84	53	95	63	78	55	94	66	82	56	85	53	77	50	95	50	78	37	89	51	85	47	88	56	.....	.....
23...	85	56	88	53	98	56	87	52	97	61	87	59	88	49	72	45	84	50	78	41	69	53	71	51	70	41	.....	.....
24...	92	54	76	59	87	64	81	48	90	58	83	54	78	47	72	36	85	43	79	40	77	45	77	44	75	43	.....	.....
25...	88	50	83	52	96	52	87	40	85	56	86	40	82	43	79	40	90	42	80	39	82	47	82	51	82	46	.....	.....
26...	89	51	85	48	100	49	90	44	99	60	89	41	96	43	82	50	101	45	74	38	95	53	90	52	79	41	.....	.....
27...	98	48	82	54	85	53	84	47	94	58	86	38	73	42	68	42	74	47	65	36	65	49	64	48	64	42	.....	.....
28...	76	46	63	51	89	56	74	40	90	54	77	50	76	36	76	31	79	35	61	32	74	38	74	38	68	34	.....	.....
29...	88	49	77	47	93	48	86	39	90	52	86	47	91	39	80	42	94	35	73	38	84	43	82	45	89	41	.....	.....
30...	93	51	84	54	98	47	86	48	98	55	86	58	90	42	79	52	98	38	80	44	89	47	83	53	82	44	.....	.....
31...	89	62	80	54	85	50	74	59	86	58	81	57	76	58	63	54	72	49	81	42	85	50	75	60	77	51	.....	.....
Mns	92.5	57.5	82.0	54.4	94.1	57.2	85.4	50.9	92.5	60.5	86.9	52.6	85.7	50.8	78.1	62.6	90.4	48.9	79.8	45.4	84.2	51.3	81.9	52.0	82.1	47.3	.....	.....

Date	Montana.				North Dakota.								South Dakota.															
	Miles City.		Poplar.		Berthold Agency.		Bismarck.		Dickinson.		Jamestown.		Williston.		Aberdeen.		Chamberlain.		Huron.		Kadoka.		Lemmon.		Pierre.		Rapid City.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	98	60	95	55	93	52	94	58	92	55	87	55	92	51	94	60	98	68	92	59	99	64	.....	.....	103	64	97	66
2...	86	66	85	58	84	65	92	68	83	65	79	64	79	55	93	66	97	67	90	67	88	.....	.....	97	71	82	64	
3...	94	54	90	51	87	49	84	57	86	48	81	60	87	49	84	63	94	62	85	64	90	.....	.....	89	65	85	60	
4...	104	64	94	54	93	53	96	62	91	55	88	53	88	52	88	54	95	65	88	58	101	64	.....	.....	98	63	97	60
5...	94	67	88	58	94	60	99	64	91	57	90	55	90	55	91	57	85	70	90	67	103	66	.....	.....	97	66	98	64
6...	78	62	79	55	82	59	84	62	84	55	85	64	77	55	87	72	95	72	90	66	92	70	.....	.....	91	67	80	65
7...	84	62	72	53	67	57	70	56	70	57	70	57	72	55	75	66	80	63	78	66	83	64	.....	.....	81	66	81	63
8...	84	62	85	58	82	50	80	53	79	54	69	52	83	53	77	57	82	65	78	61	81	62	.....	.....	78	61	77	62
9...	91	64	90	64	86	60	86	61	89	56	74	58	86	62	82	62	92	68	88	66	91	65	.....	.....	90	69	89	65
10...	95	68	92	65	92	65	85	66	82	61	75	65	89	64	92	67	93	68	90	70	93	69	.....	.....	94	75	92	62
11...	98	69	95	67	99	63	82	68	85	65	75	64	91	61	92	70	95	70	92	73	95	68	.....	.....	96	72	89	66
12...	94	68	94	64	91	66	88	67	85	63	75	61	91	70	88	70	93	72	90	71	86	70	.....	.....	92	73	84	67
13...	88	62	90	58	95	67	94	67	89	63	78	67	92	65	89	70	92	70	89	70	92	66	.....	.....	93	70	90	62
14...	94	60	93	54	92	59	90	61	86	59	81	62	91	57	91	67	96	72	95	68	94	66	.....	.....	93	70	91	64
15...	103	61	98	54	93	52	90	60	88	57	80	59	95	51	91	65	100	73	97	68	101	65	.....	.....	101	67	99	64
16...	91	74	91	63	85	64	82	65	82	57	73	56	85	63	93	64	103	67	95	69	102	65	.....	.....	104	73	91	68
17...	90	56	88	49	87	45	83	58	79	54	70	55	84	51	82	61	90	62	86	64	91	60	.....	.....	90	68	87	59
18...	94	53	93	50	92	45	86	51	85	51	77	59	91	50	82	55	86	60	82	55	87	59	.....	.....	86	61	89	53
19...	95	58	90	51	88	47	82	57	85	54	76	52	86	49	80	56	89	64	88	54	91	59	.....	.....	90	61	90	59
20...	102	65	10																									

TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 6—Continued.

Date	South Dakota.						Colorado.				Nebraska.																	
	Sioux Falls.		Watertown.		Yankton.		Denver.		Wray.		Alma.		Bridgeport.		Grand Island.		Hay Springs.		Hebron.		Lincoln.		North Platte.		Oakdale.		Omaha.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	93	61	94	61	91	61	90	60	95	63	89	61	90	52	90	66	94	55	88	64	89	66	87	61	89	62	89	67
2	80	63	90	64	91	69	86	65	94	67	93	70	89	66	92	70	90	66	83	71	91	71	95	68	92	69	88	73
3	79	59	84	66	86	68	86	60	93	66	90	70	92	52	85	66	90	52	86	66	86	67	88	65	85	64	87	67
4	79	65	88	58	87	63	88	58	90	61	91	63	91	63	87	63	93	59	91	64	90	69	85	65	87	58	90	70
5	93	68	90	63	89	71	93	59	95	65	90	64	95	59	87	65	96	52	86	68	89	71	89	63	88	67	87	73
6	92	69	90	67	89	71	93	64	95	56	93	67	95	62	90	67	97	60	93	67	91	69	91	68	89	68	89	70
7	82	68	80	65	88	73	88	58	95	66	93	71	95	49	93	70	93	60	94	72	91	72	94	72	90	72	88	72
8	80	69	78	65	83	70	83	61	94	66	93	71	87	60	91	73	85	65	91	71	93	74	92	68	89	67	90	74
9	92	68	80	62	88	71	87	60	89	60	92	62	87	55	93	65	87	62	94	66	93	69	89	65	88	69	92	73
10	92	70	90	69	90	72	85	63	91	61	90	67	86	63	94	67	87	60	95	69	94	71	88	66	89	66	92	75
11	94	74	94	70	93	77	86	62	96	62	96	71	94	57	98	72	92	60	98	71	97	74	97	70	93	72	95	75
12	92	73	83	68	93	73	87	60	98	63	95	68	95	60	98	72	90	63	100	75	99	76	94	66	93	71	98	77
13	90	69	88	68	91	72	86	64	98	61	95	70	96	60	100	70	91	58	98	72	98	75	93	62	90	70	94	76
14	94	70	92	67	90	74	89	63	98	63	100	68	95	60	97	70	92	62	98	71	97	74	94	66	91	70	96	77
15	96	68	94	64	94	72	92	62	97	63	99	65	96	56	100	65	95	60	100	70	100	72	94	62	94	70	96	77
16	95	66	.....	.....	96	71	92	63	101	59	103	62	98	59	100	66	96	60	105	68	103	71	97	66	96	67	96	74
17	85	60	.....	.....	88	65	76	60	92	66	93	75	89	56	92	70	83	60	96	71	95	70	85	61	88	65	89	72
18	84	59	.....	.....	82	61	78	58	90	64	90	62	87	59	83	60	91	57	86	62	85	62	83	57	82	58	83	65
19	80	50	.....	.....	86	58	77	60	83	64	84	55	89	57	81	55	89	57	84	56	84	61	84	59	80	50	81	63
20	84	58	.....	.....	86	60	80	55	90	52	83	53	85	49	89	53	86	48	92	51	89	56	87	52	85	52	87	62
21	85	60	.....	.....	89	67	90	59	95	63	95	60	90	55	90	63	95	65	95	60	94	66	92	64	89	60	89	66
22	90	66	78	55	86	67	89	64	98	58	102	67	97	60	90	70	90	61	93	73	89	74	94	70	85	65	82	70
23	89	64	89	62	92	70	92	60	100	70	99	63	96	57	95	70	97	56	98	68	97	74	97	69	90	67	92	71
24	90	70	86	65	88	70	75	61	89	66	100	70	.....	.....	96	67	85	61	97	69	97	71	86	67	89	67	95	68
25	89	65	90	60	85	68	86	58	91	63	96	63	.....	.....	91	60	88	54	94	64	94	70	94	65	89	58	90	72
26	94	64	93	64	94	67	88	56	94	56	102	63	.....	.....	98	65	93	52	98	68	97	73	96	58	91	61	92	72
27	94	70	95	67	96	70	87	57	99	62	100	75	.....	.....	99	74	78	52	98	73	99	75	96	65	95	70	97	72
28	82	68	78	51	75	55	68	55	82	58	77	62	87	51	77	71	75	52	75	58	78	59	76	55	74	52	77	60
29	78	40	73	35	77	44	77	54	79	48	82	44	80	50	78	45	80	45	82	47	79	47	79	48	76	40	78	55
30	88	53	87	49	86	56	83	62	93	53	89	57	.....	.....	85	52	80	50	86	48	87	51	87	56	84	48	84	58
31	78	60	75	45	72	56	85	56	91	50	93	63	90	48	87	57	79	52	94	62	91	60	88	60	80	55	86	63
Means	87.5	64.2	86.4	61.2	87.8	66.6	85.2	59.9	93.1	61.1	93.5	64.6	91.0	56.7	91.2	64.9	88.7	57.3	92.8	65.6	92.1	68.1	90.0	63.2	87.7	62.9	89.3	69.7

Date	Iowa.				Kansas.				Missouri.																	
	Valentine, Nebr.		Clarinda, Mo.		Sibley, Mo.		Sioux City.		Colby.		Concordia.		Salina.		Topeka.		Wakeney.		Columbia.		Kansas City.		St. Louis.		Unionville, Mo.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	92	61	92	64	90	58	90	65	91	63	88	66	90	63	89	72	91	66	89	66	88	75	87	68	93	65
2	90	65	90	66	89	65	88	66	95	66	93	73	96	70	91	72	97	69	89	66	89	74	90	73	91	66
3	88	60	90	69	85	66	87	67	96	67	86	69	97	69	91	67	93	66	91	67	90	71	90	74	88	68
4	92	62	92	65	85	60	86	66	91	61	88	66	92	66	89	69	91	65	90	69	87	70	90	76	93	66
5	94	64	85	69	88	61	88	69	92	63	85	71	82	68	83	70	89	65	80	69	80	71	88	76	91	68
6	96	66	89	66	87	62	87	69	96	64	90	67	93	67	89	69	93	68	88	69	86	70	88	74	90	66
7	86	66	96	67	80	67	86	71	100	67	90	73	93	68	88	71	98	70	89	67	86	71	89	71	91	60
8	82	65	92	66	80	69	87	69	97	70	90	70	94	68	89	70	93	70	89	67	87	72	90	74	92	67
9	92	68	95	65	85	68	87	74	88	59	91	67	92	67	91	71	90	62	92	68	89	73	90	76	95	67
10	91	69	95	67	90	68	89	73	92	62	93	69	96	70	93	72	92	66	94	70	92	75	92	76	96	70
11	98	70	98	69	92	69	93	75	98	67	95	74	99	71	95	72	98	69	95	71	94	76	92	75	95	68
12	93	62	100	70	90	73	91	76	94	69	97	75	99	72	95	72	99	70	95	70	94	76	96	76	98	70
13	93	65	97	69	83	72	87	73	98	65	97	76	99	73	92	73	98	68	96	72	92	78	98	80	97	68
14	92	67	98	70	88	67	91	74	99	66	96	73	100	68	92	73	100	66	94	74	90	75	96	79	96	70
15	97	63	102	70	93	67	95	73	99	61	102	75	105	73	98	76	102	67	97	74	97	77	94	75	100	72
16	99	65	100	67	90	66	96	71	99	62	103	71	106	71	102	75	103	65	98	73	100	79	94	74	98	66
17	85	66	94	68	85	66	87	66	96	66	97	72	109	73	100	72	96	68	98	69	100	78	89	72	97	63
18	87	60	90	62	80	62	83	60	91	60	89	64	94	63	87	70	91	64	90	69	88	74	86	72	92	64
19	88	62	89	61	85	51	85	55	88	59	86	60	89	63	87	68	78	64	90	65	88	70	89	74	90	61
20	90	58	90	56	84	52	84	63	88	44	89	54	88	56	87	63	87	59	88	62	86	68	88	71	89	58
21	94	66	92	57	86	57	87	62	93	63	94	60	95	58	92											



Climatological Data for August, 1909.  
DISTRICT No. 7, LOWER MISSISSIPPI VALLEY.

Dr. ISAAC M. CLINE, District Editor.

GENERAL SUMMARY.

The mean temperature for August was generally above the normal over the district; there were some cool nights, but the days were warm, and at many stations the maximum temperatures for the month were the highest of record for August. The precipitation was very unevenly distributed over the district, and in many localities severe drought prevailed. The monthly amounts were below the normal over the greater portion of the district, the only exceptions being southern and western Louisiana, southwestern Arkansas, northeastern Texas, a small area in south-central Oklahoma, and the higher mountainous sections of the Colorado and New Mexico areas. The amounts varied from a trace at one station in the Texas Panhandle to 13.72 inches at Burrwood, La.

TEMPERATURE.

The mean temperature for the month was above the normal, except that there was a slight deficiency in a few localities in Louisiana, and in the New Mexico and Texas areas. The greatest excess in temperature, amounting to more than 4° occurred over central and southeastern Oklahoma, the central portion of western Arkansas, the western portion of the Kansas and the northern portion of the Missouri areas; elsewhere the excess ranged from 0.1° to 3.9°. The highest monthly mean temperature was 87.2° at Eldorado, Jackson County, Okla., and the lowest was 53.0° at Lake Moraine, El Paso County, Colo. The maximum temperature for the month was above 100° throughout the district, except in the mountainous portions of the Colorado and New Mexico areas, and over scattered localities in the Kentucky, Tennessee, and Mississippi areas. Over a large portion of Oklahoma, Arkansas, and the Texas area, and over scattered localities in Louisiana, and the Missouri and Kansas areas, maximum temperatures of 110°, or higher, were recorded. The highest temperature recorded was 114° at Paris, Lamar County, Tex.; Ashland, Clark County, Kans.; and Norman, Cleveland County, Okla. The average of the daily maximums exceeded 100° at some stations in the central and southern portions of Oklahoma, and ranged between 95° and 100° over some localities in Louisiana and Arkansas, and the Kansas, Missouri, and Texas areas. Hot winds prevailed in portions of Oklahoma and the Kansas area at intervals during the month. The highest temperatures occurred generally from the 15th to 18th in the western and northwestern portions, and from the 17th to 21st in the eastern and southern portions of the district. The lowest temperature recorded was 31° at Lake Moraine, El Paso County, Colo. Except in the mountainous portions of the Colorado and New Mexico areas, where freezing temperatures occurred, the minimum temperatures were generally between 50° and 60°, although in scattered localities they fell a little below 50°. As a whole, the weather during the month was abnormally hot. The percentage of sunshine was above the seasonal average, except in the mountains of Colorado and New Mexico, where there was much more cloudiness than is usual for August.

PRECIPITATION BY DRAINAGE AREAS.

*Arkansas River and tributaries.*—The precipitation was unevenly distributed over this drainage area, and the amounts were less than 2 inches, except over scattered localities in the northern portion of the Kansas area, in the central and eastern portions of Arkansas, the elevated portions of the Colorado and New Mexico areas, and in a few scattered localities in Oklahoma. There was an excess at the headwaters of the Arkan-

sas proper, which extended eastward as far as the Front Range and over the upper portions of the valley of Fountain Creek; there was also an excess in the vicinity of the headwaters of the Purgatoire and to the north of the Arkansas proper in extreme western Kansas. Except as noted above, there was a general deficiency in precipitation over the Arkansas drainage area from the Front Range eastward to its junction with the Mississippi. Along the Arkansas between the 101st and the 97th meridians the precipitation was generally between 1 and 2 inches, except that 3 to 5 inches occurred over a small area to the north of Wichita, Kans., the average being 1.69 inches, about half the normal amount. Over the Cimarron Valley the precipitation averaged 1.12 inches. There were more than 3 inches over that part of this valley which lies in Colorado and New Mexico, but eastward through Oklahoma to its junction with the Arkansas the amounts ranged from 0.15 of an inch to 1.28 inches. There was an excess at the extreme headwaters of the Cimarron amounting to a little more than 1 inch, but elsewhere throughout this valley there was a deficiency ranging from less than half an inch through the Cherokee Strip to more than 3 inches over that part of the Cimarron Basin lying in the west-central counties of Oklahoma. Over the headwaters of the Canadian in New Mexico the precipitation was heavy, ranging from 2 to 7 inches; over the stretches of this valley that lie in Texas and Oklahoma the monthly precipitation amounted to more than 2 inches at a few stations, but generally only about half the normal amount occurred; the deficiency ranged from 1 to 2 inches. Over the stretches of the Arkansas from the 97th meridian to its junction with the Mississippi, the precipitation ranged from 0.18 of an inch to 2.93 inches, except in the Neosho Basin, where the amounts were generally 2 to 3 inches. In the Neosho River Basin there was a deficiency ranging from 1.54 to 3.69 inches, except at the extreme headwaters where there was a slight excess in some localities. In that portion of the Arkansas Valley proper lying within the Arkansas and Missouri areas, the deficiency ranged from 0.06 inch to 4.22 inches. The only excessive rainfalls reported from the Arkansas drainage area occurred in those portions of New Mexico which drain into the Canadian River and are as follows: Albert, Union County, 1.75 inches on the 17th, from 10 to 11:30 p. m.; Chacon, Mora County, 1.10 inches on the 23d, from 1:20 to 3:10 p. m.; Rociada, San Miguel County, 1.64 inches on the 14th, from 3 to 4:30 p. m.; Taylor, Colfax County, 2.00 inches, from 11:30 p. m. of the 16th to 1:00 a. m. of the 17th; Trementina, San Miguel County, 0.85 inch on the 9th, from 5 to 5:30 p. m.

*Red River and its tributaries.*—From the headwaters of the Red to the 95th meridian, the monthly precipitation was generally less than 1 inch, and in many cases was less than 0.50 inch; however, scattered stations in southwestern Oklahoma and in the eastern portion of the Texas Panhandle report totals in excess of 2 inches. From the 95th meridian eastward and southward over the valley, the monthly amounts ranged from 1.5 to more than 4 inches, the heaviest rainfall being over that portion of the basin lying within the State of Louisiana. Over that portion of the Red River Valley lying in the Texas Panhandle and thence eastward over Oklahoma and Texas to the 96th meridian, there was a deficiency ranging from 0.14 inch to more than 2 inches. In the neighborhood of the 97th meridian there was an excess; thence eastward to the Arkansas line the amounts were about normal, or slightly below. Over the lower stretches of the Red, through Arkansas and Louisiana, there was an excess ranging from 1 to 2 inches. Excessive precipitation (2.50 inches, or more in twenty-four hours) oc-

current in the Red River Basin as follows: Texarkana, Ark., 2.95 inches on the 7th.

*Mississippi south of St. Louis and small tributaries.*—The precipitation did not exceed 3 inches in this drainage area, except at a few stations, and was generally less than 2 inches, being much below the normal. Over the basins of the Meramec and the White, the deficiency was generally more than 3 inches although at some stations along the White the deficiency was less than 2 inches; in other localities adjacent to the Mississippi in Kentucky, Tennessee, and northeastern Arkansas the deficiency was 1 to 2 inches. Adjacent to the Mississippi, between the 35th and the 34th parallels, the distribution of precipitation was very irregular, the amounts ranging from 0.05 inch to 3.40 inches, and the departures from the normal were from 0.06 below to more than 2 inches below; between the 34th and 31st parallels the monthly amounts were more evenly distributed and the departures from the normal were more uniform; however, the monthly amounts ranged from slightly less than 1 inch to more than 4 inches, there being a deficiency over this portion of the area ranging from 1 to more than 3 inches. Over the upper Yazoo watershed the precipitation was nearly normal, the monthly amounts being 3 to 5 inches, but over the lower stretches of the Yazoo the rainfall was generally less than 2

inches and there was a deficiency of 2 to 3 inches. Over the watershed of the Big Black River the rainfall was 3 to 4 inches, being about 1 inch below the normal. The precipitation over the Ouachita watershed was generally 1 to 3 inches, being half the normal amount for that region. The only excessive precipitation during the month in this drainage area occurred within the State of Mississippi as follows: Kosciusko, Big Black River Basin, 2.50 inches on the 1st; Senatobia, Yazoo Basin, 2.55 inches.

*Louisiana coastal plain.*—The precipitation over this area was decidedly above the normal, except over a small section embracing that portion of the plain which lies east of the Mississippi River and north of Lake Pontchartrain where there was a slight deficiency. The excess of precipitation south of Lake Pontchartrain and west of the Mississippi River was more than 6 inches. The greatest monthly precipitation, 13.72 inches, occurred at Burrwood, Plaquemines Parish. Excessive precipitation occurred as follows: Burrwood, 2.71 on the 11th, and 5.22 on the 23d; Lafayette, 3.15 on the 1st; Jennings, 4.28 on the 2d; Grand Coteau, 4.05 on the 3d; Baton Rouge, 2.00 on the 9th; Donaldsonville, 2.00 on the 11th; New Orleans, 2.78 on the 23d.



TABLE 1.—Climatological data for August, 1909. District No. 7, Lower Mississippi Valley.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.	Prevailing wind direction.
Colorado.																				
Blaine	Baca	3,935	17	78.8	+ 3.2	103	6	57	28	40	0.98	- 0.79	0.60	0.0	6	20	7	4	so.	M. M. Bowen.
Buena Vista	Chaffee	7,955	9	55.0		83	10	32	10†	51	3.35	+ 2.41	1.30	0.0	5	7	13	11	w.	M. D. Balmer.
Calhan	El Paso	6,700	2	67.6		88	6	47	29	31	2.71		1.22	0.0	10	13	13	5	se.	H. B. Rice.
Canon City	Fremont	5,325	21	76.2	+ 3.8	95	5†	56	30	30	1.06	- 0.76	0.40	0.0	6	5	25	1	e.	Thomas J. Tynan.
Colorado Springs	El Paso	6,098	30	68.0	+ 1.1	87	16	44	3	35	3.82	+ 1.72	1.53	0.0	10	10	17	4		Colorado College.
Cripple Creek	Teller	9,396	9								5.56	+ 2.95	0.77	0.0	16	0	31	0		F. G. Willis.
Cuchara Camps	Huerfano	8,200									4.08		0.85	0.0	11	11	15	5	sw.	George A. Mayes.
Eads	Kiowa	4,209	2																	W. H. Lauk.
Fairview	Custer	9,500																		Elizabeth L. Gray.
Florence	Fremont	5,185		79.8		97	5†	52	29	32	1.36		0.60	0.0	6	13		15	se.	W. G. Fish.
Garfield	Chaffee	9,510			+ 2.0						3.73		0.70	0.0	22	0	22	9		Lloyd N. Felton.
Glen Eyrie	El Paso	6,500	17	67.4	+ 2.0	91	6	45	1	42	3.89	+ 1.67	0.72	0.0	11	16	14	1	s.	C. Nickell.
Hampa	Elbert	5,400	16	68.0	+ 1.3	88	23	49	5†	38	0.82	- 1.33	0.33	0.0	5	16	7	8		W. Hamp.
Hermit Lake	Custer	10,000																		
Hoehne (near)	Las Animas	5,700	17	68.6	- 0.9	97	16	41	29	48	1.31	- 0.48	0.60	0.0	5	22	7	2		S. W. DeBusk.
Holly	Prowers	3,380	14	78.4	+ 2.0	100	6†	56	29	38	0.99	- 0.59	0.36	0.0	6	17	13	1	se.	R. I. Arneson.
Lake Moraine	El Paso	10,265	15	53.0	- 0.4	72	6	31	26	36	7.01	+ 3.80	1.40	0.0	25	3	20	8	ne.	Joseph Strong.
Lamar	Prowers	3,592	19	80.6	+ 3.8	103	6	57	29	38	1.11	- 0.87	0.44	0.0	6	14	15	2	sw.	J. T. Lawless.
Las Animas	Bent	3,899	41	78.8	+ 3.8	104	6	52	5†	52	1.41	- 0.32	0.45	0.0	5	4	10	12	se.	F. M. Tague.
La Veta Pass	Costilla	9,000									3.35		0.90	0.0	11	10	16	5	w.	Norvin R. Lively.
Leadville	Lake	10,248	13	55.6	+ 1.9	75	1	37	20	34	4.74	+ 3.44	0.69	0.0	23				n.	U. S. Weather Bureau.
Limon (near)	Elbert	5,360	2																	John Leshner.
Marshall Pass	Saguache	10,846	6								2.79	+ 1.84	0.50	0.0	14	15	9	7	w.	W. D. Lillard.
North Lake	Las Animas	8,700																		Guy H. Crane.
Pueblo	Pueblo	4,734	21	74.8	+ 2.7	96	23	56	29	35	0.77	- 0.80	0.61	0.0	6	11	16	4	se.	U. S. Weather Bureau.
Rockyford (near)	Otero	4,177	20																	P. K. Blinn.
St. Elmo	Chaffee	9,500									3.74		0.38	0.0	23	9	12	10	w.	Daniel Clark.
Salida	do	7,035	11	66.5	+ 2.1	89	23	45	5	42	2.80	+ 1.50	0.65	0.0	10	12	17	2	s.	M. D. L. Buell.
Santa Clara	Huerfano	8,250	14	63.2	+ 0.6	87	16	42	29	37	3.59	+ 0.79	1.15	0.0	17	0	29	2		Lincoln Morris.
Sheridan Lake	Kiowa	4,065	8	78.8	+ 4.9	101	27	47	29	48	0.41	- 1.80	0.24	0.0	3	24	3	4	se.	Howard Gamble.
Stonewall	Las Animas	8,000	3								4.89		1.14	0.0	22	0	24	7		J. W. Shouse.
Trinidad	do	5,994	14																	Mrs. Maggie Butler.
Victor (near)	Teller	10,100	5	59.4	+ 0.7	79	8	38	29	32	4.14	+ 0.05	0.88	0.0	15	14	11	6	w.	Fred Jones.
Vilas	Baca	3,935	19								0.99	- 0.56	0.43	0.0	4	13	15	3	sw.	Carrie Konkell.
Westcliffe	Custer	7,864	15	62.6	+ 2.4	86	6†	40	5†	45	3.22	+ 1.73	0.45	0.0	13	0	21	10	nw.	Zack Jordan.
Winfield	Chaffee	9,765									2.72		0.26	0.0	25	0	23	8	e.	John G. Payne.
Wortman	Lake	11,250	9								9.07	+ 6.51	0.70	0.0	27	1	20	10	ne.	George C. Wortman.
New Mexico.																				
Abott	Mora	5,771									3.08		0.74	0.0	9	0	29	2	w.	Agt. E. P. & S. W. Ry.
Albert	Union	4,700	19	77.5	+ 1.0	100	6	57	18	37	3.64	+ 1.31	1.75	0.0	7	17	9	5	s.	Andrew Knell.
Arch (near)	Roosevelt																			Wm. A. Elliott.
Aurora	Colfax	8,849									5.22		0.92	0.0	19	0	21	10	nw.	Miss Juanita Lucero.
Bell Ranch	San Miguel	4,500	5	78.3		101	17	58	29	38	0.99	- 0.96	0.23	0.0	12	10	20	1	se.	C. M. O'Donel.
Black Lake	Colfax	8,348									4.58		0.87	0.0	17	3	19	9	w.	Ralph T. Martinez.
Cabeza	San Miguel	5,406									2.26		0.75	0.0	8	3	22	6	sw.	Agt. E. P. & S. W. Ry.
Campana	do	4,493									1.41		0.70	0.0	11	2	33	7	w.	Do.
Chacon	Mora	9,000									7.63		1.10	0.0	19	1	22	8	w.	Alfred Lucero.
Cimarron (near)	Colfax	6,355	4	67.2		87	6†	45	31	38	2.24		0.42	0.0	16	7	18	6	se.	Wm. French.
Clayton	Union	5,178	5	74.3		96	7†	49	1	37	1.92		0.69	0.0	6	18	10	3	nw.	Dr. W. W. Chilton.
Cuervo	Guadalupe	4,849									1.54		0.77	0.0	5					Agt. E. P. & S. W. Ry.
Dawson	Colfax	6,396									5.93		1.10	0.0	15	5	11	15		Do.
Dorsey (near)	do	6,000	8								5.05		1.50	0.0	9					Geo T. Lambert.
Elizabethtown	do	8,465	3	57.6		76	8†	37	31	35	7.58		1.28	0.0	17	8	19	4	nw.	Miss Mabel Carrington.
Fort Union	Mora	6,835	40	64.8	- 2.2	83	6†	45	31	33	3.78	- 0.26	0.95	0.0	13	13	15	3	sw.	M. C. Needham.
Hayden	Union	4,444		78.4		96	5†	57	5	39	3.43		1.11	0.0	9	7	14	10		George L. Cook.
Lake Alice	Colfax	7,160									4.46		1.14	0.0	10					Raton Water Co.
Logan	Quay	3,851	3	78.8		102	17	56	20	40	1.37		0.27	0.0	7	22	8	1	s.	John B. Reneau.
Los Alamos	San Miguel	6,789	5								3.46		0.73	0.0	14					Wm. Frank, sr.
Maxwell (near)	Colfax	5,894	3								3.43		1.04	0.0	9					D. N. Jackson.
Melrose	Curry	4,400	1	76.0		99	17	35	24†	36	2.63		0.62	0.0	11	21	7	3	s.	Dr. F. A. White.
Miami Ranch	Colfax	6,000	2	67.6		86†	18†	46†	31	38†	4.39		1.10	0.0	12	9	18	4	w.	Farmers' Devel. Co.
Montoya	Quay	4,335									1.72		0.60	0.0	8	10	19	2	w.	Agt. E. P. & S. W. Ry.
Nara Vias	do	4,225	4			100	17				0.73		0.44	0.0	4	13	12	6	w.	Willard Belknap.
Raton	Colfax	6,660	12	8.2	- 0.1	88	7	48	29	35	5.11	+ 3.24	1.01	0.0	19	14	15	2	w.	Prof. R. C. Crum.
Rociado	San Miguel	8,200	6	62.0		82	6	45	11	36	6.42		1.64	0.0	21	1	23	7		Chas. F. Rudolph.
Roy	Mora	5,884									1.08		0.45	0.0	6	12	19	0	sw.	Agt. E. P. & S. W. Ry.
San Jon	Quay	4,200	3	78.8		99	17	38	29†	36	2.12		0.64	0.0	9	13	11	7	se.	Jessie T. White.
Salano (1)	Mora	5,622		72.4		92	6†	53	29	32	1.57		0.70	0.0	9	12	12	7	s.	F. M. Hughes.
Salano (2)	do	5,622									1.68		0.85	0.0	7	6	19	6	w.	Agt. E. P. & S. W. Ry.
Springer	Colfax	5,857	14	73.4	+ 3.5	99	15	46	31	44	1.70	- 0.31	0.60	0.0	8	14	17	0	w.	Agt. A. T. & S. F. Ry.
Taylor	do	5,661									5.51		2.00	0.0	9	0	31	0	w.	Agt. E. P. & S. W. Ry.
Tremontina	San Miguel		2								2.57		0.85							

TABLE 1.—Climatological data for August, 1909. District No. 7—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.
				Mean.	Departure from the normal.	Highest.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Texas—Cont'd.																		
Ochiltree.	Ochiltree.	3,226	1	81.6		103	17	60	26	33	0.18		0.18	0.0	1			S. J. Allen.
Pampa.	Gray.	592	20	86.6	+ 4.1	114	18	67	23	39	2.45	+ 0.67	1.75	0.0	4	19	3	R. E. Finley.
Paris.	Lamar.		2	78.3		101	77	51	25	43	2.69		1.23	0.0	6	19	3	N. O. Enloe.
Plemons.	Hutchinson.		2	85.0		101	77	51	25	43	1.47		0.72	0.0	7	19	6	C. S. Solomon.
Quannah.	Hardeman.	1,563	4	85.0		112	18	61	27	41	0.30		0.30	0.0	1	26	1	E. E. Miller.
Sherman.	Grayson.	745	16	85.6	+ 2.8	107	18	68	23	27	1.93	+ 0.03	0.73	0.0	6	15	7	R. A. Gibbs.
Sulphur Springs.	Hopkins.	530	17	85.8	+ 2.4	114	18	67	23	36	1.95	+ 0.89	0.95	0.0	5	7	19	W. B. Baxter.
Texline.	Dallam.	4,694	4	75.1		97	9	54	27	34				0.0	0	0	0	Agt. Ft. W. & D. C. Ry.
Tulia.	Swisher.	3,501	11	77.6	- 0.1	107	17	55	24	41	0.64	- 1.86	0.27	0.0	5	3	27	Lou Mulhall.
Wichita Falls.	Wichita.	958	4								1.68	- 0.14	0.80	0.0	5	14 <sup>b</sup>	0 <sup>b</sup> 15 <sup>b</sup>	J. B. Nicholson.
Kansas.																		
Anthony.	Harper.	1,329	12	82.6		113	17	56	30	42	1.13	- 2.03	0.47	0.0	6	11	18	R. H. Beebe.
Ashland.	Clark.	1,951	2	82.9	+ 3.3	114	17	56	23	48	0.44	- 1.92	0.16	0.0	4	18	10	C. W. Carson.
Burlington.	Coffey.	1,010	16	80.4	+ 2.4	107	17	49	30	41	2.94	- 1.69	1.05	0.0	5	20	11	A. W. Maxwell.
Chanute.	Neosho.	940	5	81.0	+ 2.2	105	17	55	30	36	0.45	- 3.05	0.45	0.0	1	21	7	Chas. W. Brown.
Cimarron.	Gray.	2,700	3	79.2		105	17	53	29	40	2.60		1.17	0.0	8	3	26	Fred Mallones.
Coldwater.	Comanche.	2,090	11	82.2		110	17	58	29	36	0.41	- 1.97	0.16	0.0	4	15	13	J. L. Stanley.
Columbus.	Cherokee.	898	19	81.8	+ 4.4	108	17	51	30	39	0.57	- 3.14	0.38	0.0	3	24	6	O. E. Skinner.
Coolidge.	Hamilton.	3,346	13	76.4	+ 0.1	97	67	55	26	38	4.52	+ 2.49	4.00	0.0	4	14	12	W. B. Padley.
Cottonwood Falls.	Chase.	1,234	5	78.9	+ 0.5	102	167	48	30	40	2.22	- 1.54	1.19	0.0	6	23	7	E. B. Greene.
Council Grove.	Morris.	1,191		77.4		102	17	46	29	42	1.13		1.05	0.0	3	26	3	Geo. W. Cleek, jr.
Cunningham.	Kingman.	1,680	21	82.2	+ 3.8	109	17	54	30	39	1.10	- 1.62	1.10	0.0	1	10	19	W. H. Merton.
Dodge City.	Ford.	2,513	35	80.7	+ 4.2	103	16	53	29	34	1.25	- 1.34	0.90	0.0	6	17	11	U. S. Weather Bureau
El Dorado.	Butler.	1,291	7	81.2	+ 4.1	105	167	51	30	37	0.57	- 2.68	0.25	0.0	3	28	3	W. Y. Miller.
Ellinwood.	Barton.	1,788	15	80.7	+ 2.9	105	16	53	29	36	2.19	- 1.17	1.69	0.0	3	3	27	Martin Musil.
Emporia.	Lyon.	1,138	25	79.2	+ 2.6	102	17	50	30	35	5.56	+ 1.54	3.18	0.0	4	22	9	W. H. Boyles.
Eureka.	Greenwood.	1,093	11	79.4		104	167	49	30	40	1.12	- 2.07	0.33	0.0	7	25	5	T. C. Peffer.
Fall River.	do.	925	13	80.7	+ 3.0	110	17	47	30	44	0.32	- 2.84	0.15	0.0	3	26	5	J. McDaniel.
Fargo.	Seward.										0.37		0.25	0.0	5	11	13	Frank Swink.
Fredonia.	Wilson.	864	6	81.9	+ 4.0	109	17	54	30	38	0.40	- 3.69	0.23	0.0	3	23	7	B. W. Holmes.
Garden City.	Finney.	2,836	15	79.8	+ 1.7	103	16	54	29	38	0.81	- 1.02	0.34	0.0	4	19	12	B. F. Stocks.
Great Bend.	Barton.	1,850									2.03		1.57	0.0	3	21	6	J. A. Pritchard.
Greensburg.	Kiowa.	2,235	2	80.4		104	157	55	29	36	1.25		1.25	0.0	1	26	5	C. C. Raymond.
Grenola.	Elk.	1,116	22	79.8	+ 1.9	107	17	54	30	41	1.72	- 1.12	0.95	0.0	4	24	6	R. M. Lawyer.
Howard.	do.	1,112	2								2.02		1.10	0.0	2	25	5	J. W. Eby.
Hugoton.	Stevens.		5	80.3		102	167	57	25	38	1.44		0.69	0.0	3	18	0	J. A. Firmin.
Hutchinson.	Reno.	1,535	19	80.4	+ 2.4	105	17	53	30	39	2.53	- 0.25	1.05	0.0	6	22	8	E. S. Webster.
Independence.	Montgomery.	816	37	82.6	+ 2.8	109	17	56	30	35	0.58	- 2.49	0.56	0.0	3	20	7	J. M. Altstaffer.
Iola.	Allen.	984	3	80.2	+ 3.9	104	17	53	30	36	1.52	- 1.95	0.70	0.0	6	21	5	U. S. Weather Bureau.
Jettmore.	Hodgeman.	2,268	8	79.6	+ 1.3	105	16	53	29	40	1.36	- 0.94	0.45	0.0	5	3	27	James Aikin.
Kingman.	Kingman.	1,504	1	81.4		108	17	53	30	39	3.27		1.70	0.0	7	6	24	B. B. Anawalt.
La Crosse.	Rush.	2,061	7	80.6	+ 2.8	106	16	52	29	40	0.96	- 2.06	0.55	0.0	3	26	3	Rodney Torrey.
Lakin.	Kearney.	2,993	19	79.1	+ 1.8	102	77	52	29	40	0.58	- 1.53	0.32	0.0	3	19	10	C. H. Longstreth.
Larned.	Pawnee.	2,090	5	82.0	+ 4.1	107	16	52	29	37	0.99	- 2.35	0.50	0.0	3	19	11	H. H. Wolcott.
Lebo.	Coffey.	1,138	23	78.8	+ 1.8	100	17	50	30	36	1.49	- 3.01	1.03	0.0	6	5	5	J. J. Bowman.
Le Roy.	do.	990									1.82		0.82	0.0	4	24	3	F. W. Schmitt.
Liberal.	Seward.	2,843	2	80.6		108	17	55	29	37	0.45		0.40	0.0	2	5	7	R. T. Nichols.
Mackaville.	Stafford.	2,032	16	79.9	+ 3.1	106	17	53	29	37	1.15	- 1.23	0.45	0.0	4	13	14	Mrs. Nichola Poling.
McPherson.	McPherson.	1,495	19	79.8	+ 1.3	103	16	53	29	35	5.50	+ 2.11	2.20	0.0	6	23	5	Ed. F. Haberlein.
Madison.	Greenwood.	1,074	8	79.0	+ 1.6	106	17	47	30	43	1.81	- 2.47	1.10	0.0	4	1	30	C. A. David.
Marion.	Marion.	1,310	15	80.5	+ 1.6	106	17	49	29	39	1.32	- 2.96	0.93	0.0	4	17	14	D. D. McIntosh.
Medicine Lodge.	Barber.	1,475	16	82.0	+ 1.5	113	17	54	28	45	0.58	- 1.47	0.24	0.0	4	3	27	S. P. Garrison.
Medora.	Reno.	1,480									2.09		1.03	0.0	6	26	0	M. L. Rickenbrode.
Mt. Hope.	Sedgwick.	1,410	12								3.10	+ 0.16	0.88	0.0	8	20	10	H. N. Renfrew.
Neosho Rapids.	Lyon.	1,092	4								2.53		1.32	0.0	5	25	3	J. E. McLeod.
Ness City.	Ness.	2,260	12															J. K. Barnd.
Newton.	Harvey.	1,454	12	83.4	+ 4.8	110	16	53	30	41	1.67	- 1.77	0.87	0.0	5	26	4	C. F. Walden.
Norwich.	Kingman.	1,496	13	83.3	+ 3.2	110	17	56	30	34	0.50	- 2.40	0.33	0.0	5	10	21	N. F. Farris.
Oswego.	Labette.	899	18	83.4	+ 4.6	109	17	54	30	39	0.29	- 3.23	0.27	0.0	2	17	13	Jas. M. Curriagan.
Pratt.	Pratt.	1,950	14	80.8	+ 0.9	108	17	54	30	36	1.32	- 1.66	0.38	0.0	6	0	30	E. H. Ellsworth.
Rome.	Sumner.	1,218	12	80.4	+ 2.1	107	17	52	30	41	2.44	- 0.46	2.32	0.0	4	24	6	D. M. Adams.
Sedan.	Chautauqua.	834	24	81.2	+ 2.1	106	17	54	30	38	0.75	- 2.82	0.50	0.0	4	19	9	A. Y. Buckles.
Toronto.	Woodson.	1,040	12	81.4	+ 3.6	108	17	48	30	46	0.60	- 2.52	0.30	0.0	5	22	7	M. A. Webb.
Ulysses.	Grant.	3,027	15	82.0	+ 3.6	103	67	59	25	39	0.27	- 1.15	0.15	0.0	2	16	11	T. W. Marshall.
Walnut.	Crawford.	940	7	81.5	+ 3.8	110	17	49	30	44	0.73	- 4.65	0.51	0.0	4	28	3	R. C. Harlan.
Wichita.	Sedgwick.	1,377	22	81.0	+ 3.5	106	17	59	30	29	1.01	- 2.10	0.50	0.0	4	14	16	U. S. Weather Bureau.
Winfield.	Cowley.	1,124	12	80.4	+ 1.1	105	17	55	30	32	1.03	- 2.21	0.50	0.0	3	29	1	M. B. Light.
Yates Center.	Woodson.	1,068	16	80.9	+ 4.8	108	17	50	30	42	0.59	- 2.55	0.33	0.0	4	22	9	J. W. Tipton.
Oklahoma.																		
Ada.	Pontotoc.	1,001	3	84.8		109	17	65	30	35	2.28		0.90	0.0	7	25	5	Dr. J. P. McKinley.
Apache.	Caddo.		1	84.7		112	17	59	23	43	2.21		1.73	0.0	5	18	10	G. D. Teeter.
Arapaho.	Custer.	1,575	16															



TABLE 1.—Climatological data for August, 1909. District No. 7—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number rainy days, of inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>Oklahoma—Cont'd.</b>																				
Hennessy	Kingfisher	1,166	15	86.2	+ 4.5	112	17	62	24	40	0.52	- 2.88	0.52	0.0	1	6	25	0	s.	W. W. Parks.
Hobart	Kiowa	1,396	6	84.9	+ 3.7	108	17	63	30	37	0.27	- 2.23	0.12	0.0	3	18	11	2	s.	Roy Benedict.
Holdenville	Hughes	900	9	83.8	+ 2.6	108	17	64	30	37	2.40	- 1.55	1.43	0.0	4	25	6	0	s.	Miss M. Rutherford.
Hooker	Texas	2,999	4	79.0		101	6†	55	25†	39	0.24		0.10	0.0	4	7	2	22	s.	J. N. Kelly.
Hurley	Cimarron	1	1	78.0		99	8†	54	29	37	1.28		0.60	0.0	3	8	18	5	sw.	C. W. Myers.
Idabel	McCurtain	474	3																	Dr. W. B. McCaskill.
Jefferson	Grant	1,062	16	82.8	+ 1.7	107	17	57	30	41	3.29	- 0.07	2.28	0.0	3	22	8	1	s.	J. M. Maddy.
Kenton	Cimarron	4,000	10																	L. A. Wikoff.
Kingfisher	Kingfisher	1,046	12	84.6	+ 2.8	112	17	58	30	42	1.24	- 1.65	0.52	0.0	6	19	12	0	s.	J. C. Cross.
McAlester	Pittsburg	698	17																	Wm. Noble.
McComb	Pottawatomie	1,200	15	83.6	+ 3.4	108	17	59	23	38	2.02	- 1.13	1.00	0.0	4	12	19	0	se.	Jas. E. McNair.
Mangum	Greer	1,585	17	84.4	+ 2.5	108	5†	60	31	38	2.48	- 0.13	1.20	0.0	5	29	1	1	s.	Wade N. Johnson.
Marlow	Stephens	1,292	9	84.1	+ 2.2	109	17	64	23	39	1.29	- 0.75	0.79	0.0	4	20	2	9	ne.	W. B. Anthony.
Meeker	Lincoln	1,030	16	84.2	+ 3.5	112	17	57	24	37	0.02	- 2.91	0.02	0.0	1	19	5	7	s.	Dr. John H. Baugh.
Muskogee	Muskogee	614	11	86.0	+ 5.1	114	17	60	31	37	0.44	- 2.35	0.34	0.0	2	16	14	1	se.	Prof. E. N. Collette.
Mutual	Woodward		3	83.3		111	17	59	23	41	0.99		0.41	0.0	4	20	9	2	s.	Thos. Martin.
Neola	Caddo	1,500	4	84.0		108	17	60	30	36	1.36		0.70	0.0	5	18	13	0	se.	R. M. Schooling.
Newkirk	Kay	1,149	13	85.0	+ 3.7	112	17	58	30	36	2.11	- 2.03	1.36	0.0	4	19	10	2	s.	P. H. Allright & Co.
Norman	Cleveland	1,171	18	86.4	+ 4.4	114	17	61	30	42	1.59	- 0.58	1.05	0.0	2	5	21	5	s.	Walter H. Meier.
Okeene	Blaine	1,194	6	85.0	+ 4.2	111	17	58	30	41	0.39	- 2.46	0.20	0.0	3	18	12	1	s.	Dr. L. H. Murdock.
Oklahoma	Oklahoma	1,247	20	83.0	+ 4.5	108	17	62	30	31	1.42	- 1.75	0.68	0.0	6	13	13	5	s.	U. S. Weather Bureau.
Okmulgee	Okmulgee	752	7	82.4	+ 1.3	105	17	56	23	39	1.12	- 1.29	0.91	0.0	2	22	7	1	s.	J. L. Maynard.
Pauls Valley	Garvin	880	10																	H. M. Loomer.
Pawhuska	Osage	918	11																	A. M. Foss.
Perry	Noble	1,060	12	83.4	+ 2.5	113	17	58	30	39	2.77	- 1.18	1.67	0.0	2	16	14	1	s.	J. A. Douglas.
Ravia	Johnson	796	8	86.0	+ 4.2	113	17	64	23	41	1.06	- 1.10	0.40	0.0	9	25	4	2	se.	R. G. Guptill.
Sac and Fox Agency	Canadian	900	17	84.4	+ 4.3	109	17	62	30	32	0.18	- 3.38	0.09	0.0	3	20	1	10	se.	D. J. Henderson.
Shawnee	Pottawatomie	1,041	9	83.4	+ 2.2	110	17	62	30	35	1.06	- 1.94	0.31	0.0	5	17	7	7	s.	Neal R. Clark.
Snyder	Kay	1,356	3	84.4		107	17	64	23	41	0.99		0.82	0.0	5	16	15	0	se.	Dr. W. G. Woodard.
Stillwater	Payne	880	17	82.2	+ 1.6	108	17	59	23†	38	0.45	- 3.11	0.25	0.0	3	27	3	1	se.	John M. Speidel.
Supply	Woodward		2	82.2		112	17	58	30	45	1.20		0.77	0.0	3	22	9	0	s.	A. H. Trimbo.
Temple	Comanche	925	6																	G. F. Fitch.
Tulsa (1)	Tulsa	700	21	84.8		109	17	61	31	38	0.95	- 2.12	0.56	0.0	3	19	8	4	s.	William Hall.
Tulsa (2)	do.	702	5																	Miss Pearl E. Towers.
Vinita	Craig	698	6	81.8	+ 2.7	110	17	53	30	44	0.86	- 2.44	0.80	0.0	3	21	8	2	s.	Lyman Bros.
Wagoner	Wagoner	588	13	84.4	+ 4.0	112	17	58	30	41	0.35	- 2.62	0.32	0.0	2	16	5	10	s.	S. L. Hatfield.
Waukomis	Garfield	1,258	13	83.6	+ 1.8	112	17	59	23†	42	1.81	- 1.08	1.80	0.0	2	27	3	1	se.	R. C. Shades.
Weatherford	Custer	1,639	8	85.7	+ 4.0	112	17	62	30	34	0.66	- 0.97	0.38	0.0	2	18	8	5	s.	M. D. Reed.
Webbers Falls	Muskogee	479	11	83.5	+ 2.6	110	17	57	23	41	0.37	- 2.43	0.19	0.0	4	16	13	2	e.	B. D. Boulineau.
Whiteagle	Kay	945	4	83.6	+ 3.2	111	17	60	30	36	2.76	- 1.49	1.75	0.0	2	26	4	1	se.	J. M. Dankwardt.
Woodward	Woodward		1	82.9		111	17	57	23	41	0.29		0.20	0.0	3	27	4	0	s.	R. A. Boyle.
<b>Missouri.</b>																				
Belle	Maries		17	80.8	+ 3.8	107	15	52	23†	45	0.15	- 3.57	0.15	0.0	1	3	24	1	s.	A. J. Wofford.
Birchtree	Shannon	1,200	15	78.8	+ 2.9	100	17	52	22	40	0.60	- 3.63	0.60	0.0	1	28	3	0	e.	V. H. Kirkendall.
Cape Girardeau	Cape Girardeau	346	4																	D. L. Albert.
Caruthersville	Pemiscot		18	81.2	+ 2.6	102	28	57	31	37	2.95	- 0.06	2.65	0.0	2	29	0	1	e.	H. E. Averill.
Dean	McDonald	10	10	81.3	+ 3.2	110	17	60	21	44	0.55	- 3.82	0.25	0.0	4	21	2	0	se.	H. E. Dean.
Doniphan	Ripley	440	5	78.8		100	16	52	22†	42	0.66		0.63	0.0	2	25	4	2	s.	W. W. Martin.
Farmington	St. Francois	889	2																	Miss Helen Montgomery.
Gano	Dent		5	79.8		101	28	49	30	44	1.56		0.92	0.0	4	27	4	0	ne.	A. C. Leech.
Goodland	Iron	900	4	76.5		102	26	45	22†	50	0.54		0.50	0.0	2	27	2	2	s.	F. M. Adams.
Greenville	Wayne		14	81.8	+ 4.6	105	16†	48	22	48	0.20	- 2.94	0.20	0.0	1	18	4	0	n.	A. G. Templeton.
Ironton	Iron	925	31	78.6	+ 4.5	105	16	43	22	49	0.85	- 2.67	0.80	0.0	2	22	8	1	s.	W. H. Delano.
Jackson	Cape Girardeau	458	18	79.8	+ 4.3	102	28	53	22†	41	1.73	- 1.39	1.15	0.0	2	23	8	0	s.	L. M. Bean.
Joplin	Jasper	979	30																	Miss Elizabeth Russum.
Koshkonong	Oregon	911	9	79.7		99	28	55	22	34	0.75		0.32	0.0	5	25	6	0	e.	J. W. Hitt.
Lamar	Barton	964	28	80.9	+ 3.8	107	17	53	30	39	0.52	- 3.58	0.32	0.0	4	23	6	2	se.	E. H. Adams.
Marble Hill	Bollinger	420	16	80.0	+ 3.4	106	28	50	22	48	T.	- 3.14	T.	0.0	0	27	4	0	s.	A. F. Hendricks.
Marshfield	Webster	1,492																		O. P. Keeler.
Mt. Vernon	Lawrence	1,480	33	79.8	+ 2.1	106	17	52	30	42	4.30	+ 0.21	4.00	0.0	3	16	15	0	se.	Dr. O. H. Brown.
Neosho	Newton	1,023	25	78.8	+ 2.0	107	17	48	30	46	0.37	- 3.63	0.30	0.0	3	25	4	2	ne.	H. D. Dean.
Oakfield	Franklin	793	17	80.2	+ 3.2	101	27	53	30	38	0.47	- 2.91	0.39	0.0	3	12	18	1	s.	E. E. Steiner.
Olden	Howell	1,246	19	78.6	+ 2.3	101	17†	52	21	38	1.05	- 2.34	0.75	0.0	3	27	4	0	sw.	J. D. Evans.
Perryville	Perry	582	1																	S. L. Cayton.
Poplar Bluff	Butler	343																		E. C. Thomas.
Sikeston	Scott	328	14	80.3	+ 2.6	101	28	55	22†	38	2.40	- 0.97	2.40	0.0	1	27	4	0	sw.	A. A. Harrison.
Springfield	Greene	1,350	22	79.2	+ 4.4	102	17	56	30	30	1.23	- 3.08	1.02	0.0	4	24	6	1	se.	U. S. Weather Bureau.
Steelville	Crawford	1,746	12	76.8		100	16†	43	30	50	0.16	- 3.51	0.12	0.0	2	21	9	1	se.	Edwin Humphrey.
Willow Springs	Howell	1,300	16	79.5	+ 3.9	103	17	51	23†	47	0.19	- 3.84	0.19	0.0	1	25	4	2	ne.	John Lovewell.
<b>Kentucky.</b>																				
Blandville	Ballard	445	29	79.1	+ 2.2	95	15†	59	30†	30	0.02	- 3.00	0.02	0.0	1	12	13	1	se.	E. W. Horr.
Lynnville	Graves		8	80.4		103	28	45	31	50	0.34		0.34	0.0	1	27	3	1	ne.	Wm. Scherffus.
<b>Tennessee.</b>																				
Arlington	Shelby		28	80.4	+ 2.6	99	26†	57	22†	35	1.29	- 2.02	1.00	0.0	3	15	11	5	e.	A. T. B. Etheridge.
Bolivar	Hartman	450	25	80.3	+ 2.5	97	27†	58	22	33	1.04	- 1.4								

TABLE 1.—Climatological data for August, 1909. District No. 7—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.				Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Arkansas—Cont'd.																			
Calico Rock	Izard	361	5	82.6		107	17	60	31	38	3.18	+ 1.06	1.66	0.0	4	22	4	5	W. H. Stoner.
Camden	Ouachita	158	24	85.4	+ 2.4	111	18	65	31	36	0.22		0.22	0.0	6	19	7	5	R. H. Quarterman.
Centerpoint	Howard		9								2.05		1.38	0.0	7				J. M. Huddleston.
Clarendon	Monroe	171	5								2.05		1.38	0.0	7				Mrs. B. E. Bishop.
Conway	Faulkner	309	26	83.8	+ 4.6	110	17	56	22	42	0.42	- 2.83	0.19	0.0	4	25	6	0	G. H. Burr.
Corning	Clay	293	17	80.4	+ 2.2	100	28	52	22	39	0.27	- 3.50	0.16	0.0	4	20	10	1	Jacob Brobst.
Dardanelle	Yell	330	23	84.1		110	17	58	23	40	1.22	- 2.05	0.80	0.0	3	17	7	7	A. Bernard.
Dodd City	Marion	1,175	28	79.5	+ 1.6	104	17	50	30	44	2.95	- 1.02	2.40	0.0	4	8	23	0	Neal Dodd.
Dutton	Madison		8	78.5		105	17	55	22	39	0.28		0.26	0.0	2	19	12	0	T. S. Williamson.
Earl	Crittenden		3	82.2		104	16	55	22	35	0.00		0.00	0.0	0	25	6	0	W. J. Moss.
Eldorado	Union	265	5	82.8		106	17	64	31	34	2.85		1.25	0.0	6	21	3	7	Fred A. Babb.
England	Lonoke		3	82.8		106	17	62	23	36	1.13		0.63	0.0	3	13	11	7	J. C. Chenault.
Eureka Springs	Carroll		8	81.7		111	17	53	30	45	0.35	- 4.22	0.30	0.0	2	25	4	2	Jas. T. Pomeroy.
Fayetteville	Washington	1,451	20	82.2	+ 5.9	109	17	55	23	43	0.18	- 2.94	0.38	0.0	5	20	9	2	University of Arkansas.
Fort Smith	Sebastian	481	27	84.2	+ 4.8	108	17	65	23	30	0.82	- 2.84	0.76	0.0	3	17	9	5	U. S. Weather Bureau.
Fulton	Hempstead	264	5								2.34		1.24	0.0	2				B. C. Logan.
Hardy	Sharp	643	11	80.8	+ 1.9	102	15	54	22	40	0.56	- 2.92	0.36	0.0	3	12	16	3	C. A. Caywood.
Helena (1)	Phillipi	182	24								0.34	- 3.23	0.16	0.0	3				Robert Kyle.
Helena (2)	do	182	8																B. F. Modisett.
Hot Springs	Garland	690	3	80.6		108	17	56	22	41	2.05		1.64	0.0	3				Hot Springs Water Co.
Huttig	Union	85	2	83.2		106	18	63	28	36	2.34		1.16	0.0	5	21	9	1	C. A. Berry.
Jonesboro	Craighead	345	14	83.4	+ 3.8	104	28	55	22	43	0.22	- 3.54	0.22	0.0	1	23	8	0	Benedictine Sisters.
Junction	Union	16	16	80.6	+ 0.1	105	17	64	29	34	2.55	- 0.13	1.67	0.0	3	26	3	2	J. A. Lowderback.
Lacrosse	Izard		15																R. E. Kennard.
Lake Farm	Jefferson	195	2	83.0		103	17	60	22	40	2.22		1.20	0.0	4				R. H. Gillespie.
Lewisville	Lafayette	262	6	85.0		110	17	63	27	37	1.60		0.95	0.0	6	19	11	1	F. W. Youmans.
Little Rock	Pulaski	357	30	83.0	+ 3.8	105	17	67	31	29	1.74	- 1.91	1.03	0.0	4	18	10	3	U. S. Weather Bureau.
Lutherville	Johnson	775	12	82.6	+ 4.2	111	17	55	22	4	0.48		0.30	0.0	3	24	6	1	Herman Hentschel.
McNeil	Columbia	321	2	84.2		110	17	62	31	37	1.54		0.91	0.0					L. A. Smith.
Malvern	Hot Spring	277	22	82.8	+ 3.3	111	17	60	31	38	1.07	- 1.95	0.37	0.0	5	12	5	14	Miss L. C. Smith.
Mammoth Spring	Fulton		5	78.6		98	26	50	22	39	0.84		0.48	0.0	5	18	12	1	F. Wallick.
Marked Tree	Poinsett		5								T.		T.	0.0	0				L. Smith.
Mena	Polk	1,100	23	82.1	+ 2.6	107	17	60	23	34	1.20	- 2.94	0.38	0.0	5	20	9	2	D. H. Hopkins.
Mossville	Newton		16	79.2	+ 1.9	105	17	57	22	36	T.	- 3.75	T.	0.0	0	19	11	1	Theo. Ober.
Mount Nebo	Yell	1,750	19																G. Church.
Newport (1)	Jackson	231	25	83.0	+ 3.8	103	16	52	30	42	0.08	- 3.00	0.05	0.0	3	25	6	0	Mrs. A. B. Hillhouse.
Newport (2)	do	231	0																A. V. Hughes.
Ozark	Franklin	377	18	85.4	+ 3.3	111	17	66	30	32	1.49	- 2.47	0.89	0.0	4	25	6	0	R. M. Adams.
Pine Bluff	Jefferson	215	21	84.0	+ 2.6	107	17	65	22	33	2.04	+ 0.35	0.90	0.0	3	26	1	4	J. H. Hudson.
Pocahontas	Randolph	17	12	82.6	+ 3.8	104	16	56	31	42	0.42	- 3.80	0.35	0.0	3	21	10	0	Benedictine Sisters.
Pond	Benton	1,250	12	80.6	+ 3.4	109	17	52	30	45	0.32	- 3.74	0.23	0.0	2	8	19	4	A. F. Stevens.
Portland	Ashley	122	0	84.6		110	17	66	22	37	1.11		0.86	0.0	4	19	5	7	T. A. Corson.
Preseott	Nevada	327	21	83.7	+ 2.5	109	17	65	22	33	2.17	- 0.66	0.90	0.0	6	24	2	5	A. M. Ellsworth.
Princeton	Dallas	287	8	82.8		109	17	63	20	36	4.09		1.90	0.0	5				Capt. D. R. Feaster.
Rogers	Benton	1,385	18	80.6	+ 2.7	107	17	54	23	42	0.18	- 3.41	0.08	0.0	5	22	4	5	Carl A. Stark.
Russellville	Pope	348	24																J. F. Hodgins.
Spicerville	Logan	1,050	12	85.0		111	17	62	23	36	0.79	- 3.12	0.33	0.0	4	18	7	6	New Subiaco Abbey.
Springbank	Miller	182	2								2.03		0.84	0.0	5				G. Field.
Stuttgart	Arkansas	495	22	83.1	+ 3.7	106	16	56	22	40	0.56	- 2.82	0.30	0.0	5	23	8	0	H. A. Buerkle.
Texarkana	Miller	332	25	84.5	+ 2.8	107	17	63	24	36	4.86	+ 2.74	2.95	0.0	5	24	4	3	W. B. Weeks.
Warren	Bradley	304	14	82.7	+ 1.0	102	17	62	22	36	1.12	- 1.86	0.66	0.0	3	8	19	4	W. J. Savage.
Whitecliffs	Little River	206	5								0.54		0.25	0.0	5				John E. Payton.
Wiggo	Garland	16	1	81.3	+ 0.1	111	17	55	22	43	1.03	- 2.91	0.40	0.0	9	15	14	2	S. D. Jester.
Wynne	Cross	1	1	82.1		105	16	55	22	41	2.51		1.93	0.0	3	19	4	8	R. R. Poole.
Mississippi.																			
Anguilla	Sharkey		1	82.1		106	18	64	22	36	0.90		0.23	0.0	7	12	11	8	E. W. Cook.
Austin	Tunica	200	13	81.0	+ 1.5	101	17	57	31	37	0.05	- 3.86	0.05	0.0	1	27	2	2	H. J. Irvine.
Batesville	Panola	230	22	82.0	+ 2.8	101	16	60	31	39	2.38	- 0.87	1.67	0.0	7	23	2	4	J. M. Cox.
Byhalia	Marshall	390									2.71		1.07	0.0	5	9	22	0	Tallahatchie Dng. Com.
Canton	Madison	228	19	82.6	+ 2.2	102	18	66	28	35	2.75	- 0.82	0.80	0.0	9	11	18	2	Dr. G. W. Smith-Vaniz.
Clarksdale	Coahoma	177	2	82.0		102	16	59	31	36	3.41		1.90	0.0	5	23	2	6	H. S. Durham.
Coffeeville	Yalobusha										2.54		1.42	0.0	4	16	12	3	Tallahatchie Dng. Com.
Corinth	Alcorn	430	21	81.6	+ 3.2	100	28	61	22	35	1.30	- 2.29	0.82	0.0	7	17	4	10	Milton A. Chandler.
Crenshaw	Panola	187									2.52		1.33	0.0	9	18	12	1	Tallahatchie Dng. Com.
Denmark	Lafayette										0.66		0.38	0.0	3				Do.
Duck Hill	Montgomery		10	82.0	+ 2.1	105	18	59	22	41	0.10	- 3.11	0.10	0.0	1	18	8	1	W. H. Eskridge.
Edwards	Hinds	222	22	82.2	+ 0.6	102	18	67	1	31	4.12	+ 0.11	1.35	0.0	10	12	18	1	C. R. Knox.
Enid	Tallahatchie										2.07		1.35	0.0	6	15	15	1	Tallahatchie Dng. Com.
Fayette	Jefferson	282	8	81.6	+ 1.7	102	18	63	25	32	3.42	- 1.66	1.14	0.0	6	16	12	3	T. L. Darden.
Greenville	Washington	126	22	83.8	+ 2.5	103	17	66	31	32	0.89	- 2.86	0.56	0.0	4	26	1	4	F. L. Harbison.
Greenwood	Le Flore	140	9	82.5	+ 1.7	106	18	62	25	37	1.84	- 1.68	0.92	0.0	6	16	8		



TABLE 1.—Climatological data for August, 1909. District No. 7—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Louisiana.																				
Abbeville	Vermilion	18	22	83.4	+ 1.9	102	17	70	1†	25	4.81	- 0.96	1.20	0.0	15	14	11	6	e.	Hon. C. J. Edwards.
Alexandria	Rapides	77	21	83.8	+ 1.8	106	18	69	21	31	5.85	+ 1.75	1.40	0.0	11	11	4	16	n.	Miss Nellie Graham.
Amite	Tangipahoa	130	21	82.8	+ 1.6	103	18	67	23	29	5.68	- 0.99	1.20	0.0	11	10	20	1	ne.	Miss Lula M. Wentz.
Baton Rouge	E. Baton Rouge	35	20	81.6*	+ 0.3	110*	18	63	1	31*	9.00	+ 3.43	2.00	0.0	15	21	0	10	ne.	Elmo M. Bott.
Burnside	Ascension	29	9	79.6*		98*	18	70*	5	25*	5.13		1.77	0.0	12				e.	C. S. McFarland.
Burwood	Plaquemines	1	19	82.4	+ 0.2	92	13	72	24	13	13.72	+ 5.87	5.22	0.0	11					Graham Myers.
Calhoun	Ouachita	180	17	83.6	+ 3.0	110	18	65	31	37	1.61	- 1.77	0.80	0.0	7	10	18	3	se.	N. L. Exp. Station.
Cameron	Cameron	6	14																	State Biologic Station.
Cheneyville	Rapides	67	22	82.8	+ 1.5	105	17†	68	23	31	5.23	+ 1.30	0.94	0.0	12	16	4	11		Walter I. Tanner.
Clinton	East Feliciana	113	20	81.0	+ 0.9	98	18	68	22	24	5.06	- 1.36	1.77	0.0	14	11	9	11	n.	John A. White, jr.
Collinston	Morehouse	65	7	84.2*		107*	17	64*	31	37*	2.32		2.00	0.0	2	20	7	4		W. A. Page.
Covington	St. Tammany	39	17	82.6	+ 1.2	105	18	68	1	29	6.19	- 0.53	1.57	0.0	11	12	10	9	s.	C. Champagne.
Dodson	Winn	1	1	83.8		111	18	65	2	38	2.61		1.38	0.0	5	15	12	4	se.	J. P. Lucas.
Donaldsonville	Ascension	33	19	82.2	+ 0.7	100	18	68	5†	26	7.40	+ 1.60	2.00	0.0	12	18	7	6	s.	John F. Park.
Farmerville	Union	177	19	84.0*	+ 3.3	108*	17	66*	27	30†	1.32	- 2.06	0.41	0.0	6	16	10	1	s.	W. P. Chandler.
Ferriday	Concordia	3	3	82.4		102	17	66	22	28	4.71		1.29	0.0	7	23	0	8		R. Z. Slater.
Franklin	St. Mary	10	17	83.6	+ 1.4	102	18	70	1	25	7.24	- 0.45	1.40	0.0	16	16	5	10	s.	Miss Josephine M. Bonney
Grand Cane	De Soto	302	3	84.2		110	18	68	21	27	4.60		1.40	0.0	4	15	0	16	s.	J. J. Paxton.
Grand Coteau	St. Landry	93	17	83.2	+ 2.0	101	18	69	21	26	9.07	+ 4.31	4.05	0.0	12	14	14	3	se.	St. Charles College.
Hammond	Tangipahoa	44	10	82.5	+ 1.3	103	18	69	5†	29	4.48	- 2.03	1.30	0.0	9	19	9	3	se.	C. C. Carr.
Houma	Terrebonne	17	8	81.6	+ 0.2	97	18	69	1	21	6.56	+ 0.03	1.44	0.0	14	7	15	9	ne.	J. M. Haggerty.
Jennings	Calcasieu	30	11	82.7	+ 0.7	102	18	68	1	26	11.42	+ 6.49	4.28	0.0	15	9	14	8	sw.	J. H. Buch.
Lafayette	Lafayette	36	22	81.6	+ 0.1	98	18	70	1†	23	8.54	+ 3.24	1.08	0.0	14	15	5	11	n.	J. J. Davidson.
Lake Charles	Calcasieu	22	21	81.2	- 0.4	102	17	65	1†	36	10.12	+ 4.92	2.37	0.0	11	19	3	9	e.	A. O. Boudreaux.
Lakeside	Cameron	8	8	82.6		98	18	68	11	21	3.71		1.36	0.0	9				e.	L. J. Nunemacher.
Lawrence	Plaquemines	6	19	82.6	- 0.4	103	18	68	3†	25	7.68	+ 0.56	1.80	0.0	14	22	5	4	s.	H. C. Warmoth.
Liberty Hill	Bienville	22	22	86.0	+ 3.7	112	18	68	31	38	4.58	+ 1.68	1.68	0.0	6	19	6	6	s.	Dr. E. A. Crawford.
Logansport	De Soto	192	4								2.34		0.82	0.0	5	18	4	9	se.	Mrs. Bettie M. Dennis.
Melville	St. Landry	45	22	82.4	+ 1.0	100	18	69	1†	28	6.94	+ 1.42	2.03	0.0	12	15	8	8	ne.	Chas. B. McNeill.
Minden	Webster	194	21	83.0	+ 1.0	112	18	67	1†	39	2.18	- 0.56	0.79	0.0	8	13	14	4	n.	Miss Ethel Fort.
Monroe	Ouachita	82	22	83.0	+ 1.0	105	18	69	23	27	1.99	- 1.75	0.68	0.0	8	25	4	2	s.	Eugene Stannard.
Morgan City	St. Mary	14	4								4.38		1.04	0.0	11	17	2	12	ne.	Virgil E. Kinsey.
Newellton	Tensas	2	2	81.6		100	17†	67	22	26	3.90		0.85	0.0	10	15	16	0	n.	John D. Fultz.
New Iberia	Iberia	15	19	82.4	+ 1.2	97	19	70	1	22	6.80	- 0.13	1.75	0.0	11	8	11	12	e.	Mrs. Jno. A. Gebert.
New Orleans (1)	Orleans	15	35	83.0	+ 2.0	100	18	71	10	20	8.02	+ 2.42	2.49	0.0	13	9	14	8	e.	U. S. Weather Bureau.
New Orleans (2)	do.	18	22	83.4	+ 1.6	98	18†	71	1†	20	8.96	+ 3.10	1.92	0.0	11	12	4	15	s.	Sugar Exp. Station.
New Orleans (3)	do.										6.83		1.99	0.0	11					
New Orleans (4)	do.										8.62		2.34	0.0	14					Sewerage and Water
New Orleans (5)	do.										8.02		2.78	0.0	10					Board, New Orleans
New Orleans (6)	do.										7.54		2.51	0.0	12					Drainage Commis-
New Orleans (7)	do.										6.45		1.91	0.0	10					sion.
New Orleans (8)	do.										7.94		2.55	0.0	11					
Opelousas	St. Landry	83	18	83.2	+ 1.4	103	18	69	21	29	10.23	+ 4.74	5.35	0.0	14	7	11	13	n.	Andrew Moresi.
Pearl River	St. Tammany	3	3								8.63		2.89	0.0	12	19	4	8	w.	George F. Bancks.
Plain Dealing	Bossier	268	17	83.8	+ 2.3	110	18	67	26†	34	4.25	+ 1.58	2.10	0.0	6	11	16	4	se.	Leon Sanders.
Rayne	Acadia	44	18	82.8	+ 0.4	100	18	69	23	24	7.87	+ 2.59	2.20	0.0	13	17	4	10	e.	A. P. McNeill.
Reserve	St. John Baptist	8	8								5.22		1.26	0.0	11	2	17	12		Leon Godchaux Co.
Robeline	Natchitoches	147	14	83.2	+ 2.2	110	18	63	23	36	6.10	+ 2.79	1.98	0.0	8	20	1	10	s.	Miss Ruby McCook.
Ruston	Lincoln	312	13	83.4	+ 1.6	107	18	65	3†	33	3.10	- 0.05	1.40	0.0	3	18	12	1	n.	J. C. H. McKinney.
Schriever	Terrebonne	17	18	83.5	+ 1.5	105	18	67	1	28	9.90	+ 3.54	3.36	0.0	13	19	4	8	e.	Charles V. Moore.
Shreveport	Caddo	249	37	83.9	+ 2.5	110	18	69	7	28	2.99	+ 0.75	1.60	0.0	8	21	6	4	ne.	U. S. Weather Bureau.
Simmesport	Avoyelles	4	4								79.4		1.28	0.0	15	9	12	10	ne.	W. P. Denny.
Southern Univ. Farm	Jefferson	14	14								7.01	+ 2.18	2.15	0.0	11	11	10	10	se.	F. L. St. Martin.
St. Francisville	West Feliciana	115	5	81.7		100	17	66	1	27	5.29		1.80	0.0	9	20	4	7	ne.	L. P. Kilbourne.
Sugartown	Calcasieu	17	82.5	+ 1.2		101	19	70	8†	21	9.32	+ 4.61	2.97	0.0	10	4	25	2		G. W. Richardson.
Tallulah	Madison	91	1	81.6		105	17	64	24	34	1.86		0.90	0.0	8	6	22	3		G. P. Blair.

\* Precipitation included in that of the next measurement.

† Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.

‡ Also on other dates.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

|| Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

¶ Estimated by observer.

||| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

\*, †, ‡, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2—Daily precipitation for August, 1909. District No. 7, Lower Mississippi Valley.

Stations.	River basins.	Day of month.																															Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Colorado.																																			
Blaine	Cimarron			.28						.60					.01	T.			T.	.03	.04									.02			T.	0.98	
Buena Vista	Arkansas	T.							T.						.75			1.30	T.	.59				T.						.11		T.	.60	3.35	
Calhan	Big Sandy								.11		.81	.14		.02	.02				T.	1.22	.23	.01			.12								T.	.03	2.71
Canon City	Arkansas			.03							.10										.30			.18										1.06	
Colorado Springs	Fountain		.10	.25				T.	T.		.15	.08	.29	T.	.31				.03	.66	.42			T.	1.53								T.	3.82	
Cripple Creek	Oil Creek		T.	.60	T.						.41	.32	.12	.30	.10	.36	.33	T.	.77	.49	.04		T.	.22		1.53	.09					.31	.20	5.56	
Cuchara Camps	Cuchara			.81							.20		.25	.14	T.			.55		.12	.85	.30			.49						.18		4.08		
Eads	Big Sandy																																		
Fairview	St. Charles																																		
Florence	Arkansas								.08		.05								.60	.35				.20	.08									1.36	
Garfield	Little Arkansas	.03	.37	.07	T.		.25		.35	.12	.21	.22	.23	.07	.07	.03	.14	.22	.06	.28	T.	T.			.70	.02			.10	.06	.08	.05		3.73	
Glen Eyrie	Fountain						.18		.11		.38	.35		.37					.66	.72	.30				.46						.11		.05	3.89	
Hamp	Big Sandy							T.				.06					.14									.28								0.82	
Hermit Lake	Grape Creek																																		
Hoehoe (near)	Purgatoire	T.		T.		T.												.09	.60		.40				.12	.10								1.31	
Holly	Arkansas	.13					.25				.06							.36			.07	.12												0.99	
Lake Moraine	Fountain		.11	.23		.05	.15	.15	.60	.25	.30	.17	.80	.02	.01	.22	.06	1.40	.75	.10	.10			.10	.40	.03	.60		.18		.13	.10		7.01	
Lamar	Arkansas		.27				.44			.03	.06												.25											1.11	
Las Animas	do			.14											.43			.45							.27									1.41	
La Veta Pass	Cuchara		T.	.16			T.		.13						.13				.18		.10	.90												3.35	
Leadville	Arkansas	.25			.38	T.	.16	.20	.02	.20	.16	.15	.29	.34	.14	.01	.05	.21	.14	.09	T.			.20	.69	.03				.30	.05	.47	.21	4.74	
Limon (near)	Big Sandy																																		
Marshall Pass	Arkansas		.30	.50				.10	.21	.23		.20			.14	.16			.21			.18	.23					.11			.13	.09		2.79	
North Lake	Purgatoire																																		
Pueblo	Arkansas		T.	.01	T.			T.					.01	.01	T.				T.	.59	.14	.01	T.			T.							T.	0.77	
Rockyford (near)	do																																		
Saint Elmo	Chalk Creek	.03	.36	.05	.02	T.	.35		.38		.09	.11	.13	.21	.36	.08	T.	.29	T.	.15	.30	T.	T.			.07	.04	.15	.04	.08	.20	.21	.04	3.74	
Salida	Arkansas								.08	.11		.10							.45	.30	.10					.60	.18			.23			.65	2.80	
Santa Clara	Cuchara	.20		.08	T.		.03	.04		.02	.25	.45	.16		.14				.02	1.15	.31	.21			.05	.21				.27	.02	T.	T.	3.59	
Sheridan Lake	Arkansas	.12								.05	T.								.24															0.41	
Stonewall	Purgatoire		.09	.51	.03		.10		.29	.02	1.14		.01		.64	.11		.15	.45	.42	.18	.10	.18		.05	.05	.07	.22		.02	.06		T.	4.89	
Trinidad	do																																		
Victor	Oil Creek		T.	.50	.50				.33		.09		.14	.35		.08	.17	.10	.88	.41		T.	.11		.13						.08		.27		4.14
Vilas	Cimarron								.29											.43	.17	.10												0.99	
Westcliffe	Grape Creek			T.	.10				.40	.02	.05		T.	.05					.45	.30	.43	.44			.03	.40					.15		.40		3.22
Winfield	Clear Creek		.22	.15	.26	T.	.09	T.	.03	.04	.05	.02	.23	.14	.03	T.	.21	.05	.06	.08	.03	.02	T.		.03	.40					.18	.16	.25	.12	2.72
Wortman	Arkansas	.12	.17	.30	.47	.30	.52	.43	.20	.70		.47	.32	.22	.37	.50	T.	.34	.44			.21	.30	T.	.44	.12	.16	.20	.30	.50	.40	.30	.27	9.77	
New Mexico.																																			
Abbott	Canadian			.12	.34	.07		.12					.05		.45				.74	.45	.74												3.08		
Albert	do			.45					.58				.07	T.					1.75	.56	.08	.15											3.64		
Aurora	Red																																		
Black Lake	Canadian	.19	.09	.92	.29	.14	.10	.24	.08	.87	.03			.12	.47				.58	.29	.12	.05	.02		.35	.37								5.22	
Bell Ranch	do	.02	.20		.03				.03	.17			.23	.02	T.					.18	.02	.02										.06	.01		0.99
Black Lake	do	.31		.56	.42	.16	.48		.33	.07		.03		.08	.35				.87	.30	.16	.08	.06		.08	.24								4.58	
Cabeza	do	.12		.17					.70		.05			.10						.32	.75	T.												2.26	
Campana	do	.03		.02		.02			.02	.28	.07				.13				.70	.10	.02													1.41	
Chacon	do	.20	.24	.43	.32	.56		.15	.05	.28	.12		.29	.38		.64		.20	.65	.07		.92	1.10	.65	.28									7.63	
Cimarron	do	.04	.05	.25	.10	.04		.08				T.	T.	.03	T.	.01	.39		.16	.15	.11	.31	.42		T.	.08	T.					.02		2.24	
Clayton	do		.14	.20					.40								.39			.69	.10													1.92	
Cuervo	do	.39							.77							.27	T.				.01		T.								.10	T.		1.54	
Dawson	do	.50	.50	.35	.33				1.10	.19	.02				.02	.52		.34	.22	.90		.40				.24	.30							5.93	
Dorsey	do																		.50	1.50	.05	.46	.06		.35	.10								5.05	
Elizabethtown	do	.16	.04	1.07	.80	.22			.48	.24	.23								.08	.51	.03		.33	.42										7.53	
Fort Union	do	.25	.08	.10	T.	T.			.18	.95	T.	.05		.06	.16	.15			.08	.95	.65	T.												3.78	
Hayden	do		.02		.04				.10	.11									.12	.78	.98													3.43	
Lake Alice	do	T.	.16	.48	.09				.28					T.	1.14		T.	.23		.98	.43	.14			.53									4.46	
Logan	do	.15	.15			.25																													



TABLE 2.—Daily precipitation for August, 1909. District No. 7—Continued.

[illegible]

TABLE 2.—Daily precipitation for August, 1909. District No. 7—Continued.

Stations.	River basins.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
<i>Oklahoma—Cont'd.</i>																																	
Meeker	Canadian														.02																	0.02	
Muskogee	Arkansas														.41										.34					.10		0.44	
Mutual	Canadian	.27			.20	.11																										0.99	
Neola	Washita		T.		.17	.33		.07						.70											T.				.09		T.	1.36	
Newkirk	Arkansas														.11														.13	.51	1.36	2.11	
Norman	Canadian								T.	T.				T.	T.										.34			1.05				1.59	
Okeene	Cimarron			T.	.02	T.					T.	.17																			.20	0.39	
Oklahoma	Canadian													.05	.52										.05				.08	.04	.68	1.42	
Okmulgee	do													.91											.21					T.		1.12	
Pauls Valley	do																																
Pawhuska	Arkansas																																
Perry	do																								T.				1.10		1.67	2.77	
Ravia	Washita	.03	.01	.01		.40									.01										.23				.24			1.06	
Sac & Fox Agcy.	Canadian																								.06	.03						0.18	
Shawnee	do			T.	.15				T.	T.	.25				.31															.30		1.06	
Snyder	Red	.05								.08					.03	.01														.82		0.99	
Stillwater	Cimarron																										T.	.02		.25	T.	.18	0.45
Supply	Canadian				.77	.40					.03																					1.20	
Tulsa (1)	Arkansas					.31																								.45	.11	0.95	
Tulsa (2)	do																																
Vinita	do				.80	.01									T.															.05		0.86	
Wagoner	do														.03																	0.35	
Waukomis	Cimarron				T.					T.	T.																			.01	T.	1.80	
Weatherford	Canadian														.28															.38		0.66	
Webbers Falls	Arkansas														.05	.10														.03		0.37	
Whiteagle	do																													1.01		1.75	
Woodward	Canadian	T.			.20	.06																										0.29	
<i>Missouri.</i>																																	
Belle	Meramec					T.	.15								T.																	0.15	
Burchtree	Black					.69																										0.60	
Cape Girardeau	Mississippi																																
Caruthersville	do					2.65																										2.95	
Dean	Neosho					.02									.05															.25		0.53	
Doniphan	Black					T.																										0.66	
Farmington	Mississippi																																
Gano	Meramec				T.	.78	.14	.54																								1.56	
Goodland	Black				.50	.04																										0.54	
Greenville	Mississippi																															0.20	
Ironton	do					T.	T.	.05																								0.85	
Jackson	do					T.	.15							.80																		1.73	
Joplin	Neosho															.58																	
Koshkonong	Black				.02	.12										.32	.16															0.75	
Lamar	Neosho	.05				T.	.07	T.							T.	.32																0.52	
Marble Hill	Mississippi					T.																										T.	
Mt. Vernon	Neosho				.25																										4.00	.05	4.30
Neosho	do									.02					.05	T.																0.37	
Oakfield	Meramec					T.	.02			.02					.39																	0.47	
Olden	White															.20															.75	1.05	
Sikeston	Mississippi					2.40																										2.40	
Springfield	White					T.	.02								T.	T.	.18			.01										1.02		1.23	
Steelville	Meramec					.04																										0.16	
Willow Springs	White					T.										.19																0.19	
<i>Kentucky.</i>																																	
Blandville	Mississippi	.02																														0.02	
Lynnville	do					.34	T.																									0.34	
<i>Tennessee.</i>																																	
Arlington	Mississippi	1.00				.12		.17																								1.29	
Bolivar	do														1.00																	1.04	
Brownsville	do					T.	.40							.53	T.																	1.08	
Covington	do	.60				.20	.44									.05																1.29	
Dyersburg	do					.50	1.75																									2.25	
Jackson	do	.65			.15											.09																1.05	
Kenton	do					.44										.28																0.72	
Memphis	do					.29	1.02	T.	.22	.12	.40			.03	T.																	2.08	
Milan	do					.04	.47	.04								.46																1.01	
Trenton	do					1.47										.16																1.63	
Union City	do					.45										.04	.05															0.54	
<i>Arkansas.</i>																																	
Aliota	White															.10																0.10	
Amity	Ouachita	T.				T.	2.43	.20																									



Stations.	River basins.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
<b>Arkansas—Cont'd.</b>																																		
Lake Farm	Arkansas	.40					1.20	.42																	.20								2.22	
Lewisville	Red	.88	.07				.12	.17	.20																.16								1.60	
Little Rock	Arkansas					T.	.02	.67	T.				1.03				T.		T.						.02						T.		1.74	
Lutherville	do.						.30	.03																									0.48	
McNeil	Ouachita						.91	T.	.20				T.	.10	T.										.43	T.				.15			1.54	
Malvern	Ouachita	.30					.48		.20	.17			T.													.30							1.07	
Marked Tree	White																								.05								0.84	
Mena	St. Francis						.33	T.	.11	.21																							1.20	
Mossville	Ouachita												.17												.38								1.20	
Mount Nebo	White					T.																											T.	
Newport (1)	Arkansas											T.	.05	T.			T.	.02			.01												0.90	
Newport (2)	White																																	
Ozark	do.																																	
Pine Bluff	Arkansas						T.	.32						.89											.12						.16		1.49	
Pocahontas	do.	1.80	T.					.90	.24																	T.							2.94	
Pond	White						.35	.05										.02															0.42	
Portland	Arkansas								T.						T.											.09					.23		0.32	
Prescott	Ouachita	.09					.86	.06																		.10							1.11	
Princeton	do.	.54	.05				.26	.25	.17						T.											.90							2.17	
Rogers	do.	1.05					1.90	.40							T.											.27	.47						4.09	
Russellville	Arkansas								.04				T.	.02	.02																			

TABLE 2.—Daily precipitation for August, 1909. District No. 7—Continued.

Stations.	River basins.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Louisiana—Cont'd.																																	
Monroe	Ouachita	.72		.10	T.	.10		T.	.68	T.	T.	.12	T.	T.	.10						.07				.10	T.							1.99
Morgan City	Coast		.30		.54	.02				.14	.10	.82	1.04	.14										.42			.76			.10		4.38	
Newellton	Mississippi	.25					.20	.40	.10	.10	.60	.80		.85										.40	.20							3.90	
New Iberia	Coast	.20	T.	.60	1.40			.60	1.50	.10	.40	.10	T.		T.						T.	T.	T.	1.75		.05	T.			.10	T.	6.80	
New Orleans (1)	do.	.30	T.	T.	.08	.02		1.94	.18	.17	.65	.50	.32	.29						T.	T.	T.	2.43	.06	T.	1.09	T.					8.03	
New Orleans (2)	do.	.66		.06				.96		.42	1.23	1.15	.99	.17									1.92	.56		.84						8.96	
New Orleans (3)	Coast	.21			.42			1.34	.10	.09	.42	.81	.34										1.99	.07		1.04						6.83	
New Orleans (4)	do.	.61		.05	.01			.95	.01	.38	1.18	1.15	.92	.13						.04			2.34	.08		.77						8.62	
New Orleans (5)	do.	.15						1.15		.41	.79	.78	.66	.04									2.78	.08		1.18						8.02	
New Orleans (6)	do.	.04			.10			1.59	.10	.20	.59	.60	.34	.28									2.51	.04		1.15						7.54	
New Orleans (7)	do.	.50						1.72	.19	.10	.50	.76	.18										1.91	.07		.52						6.45	
New Orleans (8)	do.	.20						2.05	.28	.02	.33	.73	.30	.50									2.55	.01		.97						7.94	
Opelousas	do.	1.13	.75	5.35	.33	.25	T.	T.	.25	.27	T.	.48	T.	.46	T.					.08				.33	.22		T.	.09		.24		10.23	
Plain Dealing	Ouachita	1.31					.12		.18	.02				2.10										.52								4.25	
Rayne	Coast	1.80	1.03	.20	2.20	.70	T.	T.	.25	.30		.28	.10	.20							.36			.40	.05	T.						7.87	
Reserve	do.		.45	.40	.30				.53	.60	.10	.30	.20	.52										.56			1.26					5.22	
Robeline	Red	1.82		.18	T.			.27	T.	1.98		.03	.27	T.										.33	1.22							6.10	
Ruston	Ouachita						.90	.80	T.	T.			T.	T.									T.	1.40								3.10	
Schriever	Coast	1.35	2.01	T.				.41	.10	T.	.19	.86	1.01	.12	.30						T.			2.00	.30		.80				.36	9.90	
Shreveport	Red	.03	.07				.09	1.06	.11					.03										.07	1.53							2.99	
Simmesport	Red		.40	1.20	1.00	.16	1.28			.50	.50		.10	.20	.18						1.20			.62		.04				.54	.02	7.94	
Southern Univ. Farm	Coast	.90	.05					.40	.10	.12	.15	.16	.10										2.10	.30		.63						7.01	
St. Francisville	Mississippi	.70			1.80			.45		.25	.25		.50								.90			.29						.20		5.29	
Sugartown	Red		.86			.85		.45	2.49		.16	1.98	.80							.30				1.12		.28						9.32	
Tallulah	Mississippi	.05					.21	.90		.08		.15		.27								.11		.09								1.86	



TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 7, Lower Mississippi Valley.

Date.	Colorado.						New Mexico.				Texas.				Kansas.								Oklahoma.					
	Lamar.		Leadville.		Pueblo.		Albert.		Cimarron.		Amarillo.		Paris.††		Dodge City.		Ellinwood.		Iola.		Liberty.		Wichita.		Ardmore. ††		Bartlesville.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	98	75	75	41	89	58	94	64	80	51	93	67	99	72	98	65	93	72	91	69	.....	.....	92	72	107	74	95	69
2...	100	70	68	42	90	64	94	63	85	50	92	66	103	74	98	69	98	69	92	72	.....	.....	94	73	105	73	99	71
3...	90	69	70	40	83	64	96	65	80	56	94	66	103	74	94	69	99	72	92	69	.....	.....	96	73	104	73	97	68
4...	98	75	69	40	88	59	92	61	76	56	93	69	102	74	91	69	96	67	91	72	.....	.....	92	71	105	71	97	70
5...	99	69	73	41	93	58	98	61	83	50	96	71	105	74	97	69	87	65	79	70	.....	.....	82	70	106	74	87	78
6...	103	67	71	45	93	61	100	67	87	53	95	69	103	75	101	67	94	68	90	71	.....	.....	96	70	108	78	100	70
7...	100	64	70	41	91	65	98	68	85	56	95	69	99	69	99	73	95	71	89	71	.....	.....	91	71	100	70	94	71
8...	96	62	73	44	92	67	94	70	85	55	90	65	90	69	92	70	92	69	89	68	.....	.....	88	70	89	70	94	70
9...	89	65	71	41	86	63	83	64	77	55	73	65	93	72	87	67	91	67	92	72	.....	.....	90	71	95	71	95	73
10...	94	64	70	42	86	62	87	64	78	52	85	64	97	73	91	68	94	70	94	71	.....	.....	92	73	102	71	96	73
11...	99	65	65	43	91	61	93	65	85	50	90	65	98	73	95	71	97	71	95	70	.....	.....	96	73	101	71	98	74
12...	96	67	71	44	91	62	98	69	85	55	92	69	99	74	96	74	97	70	94	70	.....	.....	94	73	100	74	97	75
13...	98	60	68	45	90	67	94	67	85	57	86	69	93	72	97	73	98	70	94	72	.....	.....	93	72	89	71	98	71
14...	100	68	71	41	92	66	95	64	87	57	92	64	98	73	96	70	99	68	91	70	90	72	93	69	99	71	96	70
15...	100	65	74	44	91	61	94	64	83	57	94	70	103	74	100	70	103	70	98	75	101	68	99	73	104	74	102	75
16...	102	70	73	44	93	63	98	64	87	52	98	68	109	75	103	72	105	69	101	73	105	64	103	74	107	75	108	75
17...	97	66	71	43	89	69	99	67	85	57	102	68	113	74	102	74	101	71	104	70	108	71	106	77	111	70	111	80
18...	97	67	70	46	77	62	91	57	81	58	90	68	114	77	92	66	93	64	89	75	98	69	89	72	106	73	94	78
19...	85	66	64	40	76	62	82	63	73	55	86	65	107	77	82	65	81	59	90	73	82	65	89	64	101	73	95	71
20...	80	64	70	37	78	61	71	63	71	55	82	67	102	75	82	66	92	62	90	65	85	65	89	67	96	76	96	73
21...	93	62	70	43	88	60	87	64	81	52	88	68	101	75	91	67	95	61	95	65	95	68	92	69	101	71	98	68
22...	97	63	73	41	90	64	89	64	82	56	91	69	102	73	94	72	98	69	96	64	98	69	96	73	102	70	100	68
23...	98	70	71	42	96	62	90	65	81	52	90	62	101	67	94	67	98	66	96	63	97	67	94	67	102	65	100	65
24...	98	69	66	46	86	63	92	63	83	52	90	58	88	68	93	66	95	62	90	63	97	61	90	71	83	70	98	60
25...	90	65	68	42	85	60	87	64	76	56	92	57	95	68	93	64	95	71	88	73	98	57	88	72	93	71	96	72
26...	94	60	68	40	86	60	88	62	79	52	92	66	99	72	95	70	98	75	95	71	100	69	95	73	100	71	98	73
27...	100	70	66	43	94	67	93	66	84	50	92	66	99	71	95	73	98	76	94	69	98	70	95	75	99	67	98	70
28...	94	63	59	43	68	61	83	67	74	57	87	66	103	72	80	58	83	60	89	64	92	61	90	62	103	74	102	72
29...	82	57	63	41	79	56	79	58	70	52	80	59	102	74	79	56	79	53	80	58	79	55	78	59	91	68	84	64
30...	95	65	65	44	86	67	85	61	76	51	88	61	103	73	91	60	90	54	89	53	97	61	86	59	95	67	93	58
31...	96	60	66	39	87	60	93	62	83	45	92	65	98	69	93	71	90	69	92	63	101	67	81	67	97	72	89	70
Mns	95.4	65.9	69.1	42.2	87.2	62.4	90.9	64.1	80.9	53.6	90.4	65.8	100.7	72.6	93.3	68.1	94.3	67.1	91.9	68.5	.....	.....	91.9	70.2	100.0	71.6	96.9	70.9

Date.	Oklahoma.												Missouri.										Lynnville, Ky.				Jackson, Tenn.			
	Enid. ††		McAllister.		Mangum. ††		Muskogee.		Oklahoma.		Weatherford. ††		Woodward.		Caruthersville.		Ironton. ††		Lamar. ††		Olden.		Springfield.		Lynnville, Ky.		Jackson, Tenn.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	102	74	.....	.....	106	73	106	71	100	72	107	75	102	72	91	72	92	63	92	67	90	68	86	70	85	72	94	71	.....	.....
2...	103	68	.....	.....	104	72	104	73	99	72	104	74	102	67	91	70	92	58	93	70	89	63	88	68	85	69	94	70	.....	.....
3...	103	70	.....	.....	105	74	104	74	100	74	105	72	104	66	93	72	94	58	94	66	91	58	89	65	88	69	94	67	.....	.....
4...	100	71	.....	.....	105	74	104	71	98	72	104	78	96	70	94	68	96	60	96	71	91	58	88	69	88	70	94	71	.....	.....
5...	101	71	.....	.....	108	75	103	74	99	77	105	74	97	71	95	71	91	62	77	73	92	66	79	71	92	70	97	70	.....	.....
6...	106	69	.....	.....	108	73	108	77	103	76	105	79	103	71	87	68	92	68	89	71	87	59	84	70	86	72	96	71	.....	.....
7...	100	71	.....	.....	105	76	101	69	95	71	103	74	101	71	89	69	94	61	87	69	89	57	85	67	90	65	91	65	.....	.....
8...	95	69	.....	.....	95	73	95	69	88	69	92	72	94	65	92	69	95	60	92	68	90	64	87	67	94	68	92	68	.....	.....
9...	97	69	.....	.....	85	72	98	70	91	70	93	72	90	66	92	72	98	62	94	72	91	66	88	69	94	69	94	68	.....	.....
10...	98	70	.....	.....	92	71	102	72	94	73	97	73	93	65	95	70	99	61	95	69	92	66	89	70	94	68	97	69	.....	.....
11...	103	69	.....	.....	96	72	98	73	97	74	99	74	98	68	97	71	99	64	98	69	94	68	92	72	97	72	100	70	.....	.....
12...	103	70	.....	.....	99	72	96	71	97	74	102	73	100	70	99	74	98	65	97	70	95	69	93	72	95	71	100	72	.....	.....
13...	101	72	.....	.....	96	74	97	73	93	71	100	74	99	73	97	73	97	68	96	72	94	71	92	73	97	74	97	72	.....	.....
14...	100	69	.....	.....	98	71	97	72	89	70	90	70	96	71	96	74	96	70	95	70	95	70	92	72	97	80	99	73	.....	.....
15...	105	69	.....	.....	98	72	105	74	99	73	102	79	103	73</																

TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 7—Continued.

Date.	Tennessee.				Arkansas.																Mississippi.							
	Memphis.		Union City.		Bentonville.		Corning.		Dardanelle. #		Eldorado. #		Fort Smith.		Little Rock.		Pine Bluff. #		Texarkana. #		Wynne. #		Clarksdale. #		Corinth. #		Greenville. #	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	89	72	92	69	96	64	89	72	97	72	90	69	97	73	91	72	95	70	102	74	97	70	96	73	92	74	93	70
2...	87	75	94	68	93	69	88	70	102	72	94	72	98	76	91	74	95	72	99	78	93	67	91	70	92	72	95	73
3...	89	75	96	69	93	65	89	70	100	68	95	70	96	73	92	75	95	72	99	69	95	67	95	70	93	70	97	73
4...	91	75	97	70	93	68	90	70	99	70	95	71	98	73	92	74	97	71	103	68	98	68	96	75	91	72	97	73
5...	92	74	97	70	86	70	88	71	101	69	96	73	98	74	93	77	96	72	101	67	98	70	97	71	94	72	97	72
6...	89	72	91	70	91	71	85	73	98	65	96	74	97	74	90	73	98	71	98	74	90	70	89	71	86	70	95	73
7...	89	70	94	68	89	64	88	70	96	68	91	69	91	70	86	70	90	70	92	68	89	69	87	71	90	68	90	70
8...	91	71	95	67	91	65	89	69	93	71	87	71	89	69	86	70	90	70	89	70	91	69	90	70	90	68	91	71
9...	90	73	96	68	93	67	91	70	95	69	90	73	93	72	90	73	93	72	91	73	92	70	91	71	91	69	94	72
10...	92	74	99	69	95	68	93	69	96	71	91	72	96	73	91	75	96	72	93	73	93	72	94	71	92	70	95	72
11...	92	77	96	71	95	68	93	70	97	72	89	70	96	73	90	74	89	74	93	72	97	72	93	72	95	70	86	73
12...	90	77	97	73	95	69	95	73	95	73	88	72	92	74	88	73	92	73	93	73	95	75	95	75	94	73	94	72
13...	89	76	97	71	91	71	94	75	97	71	91	73	93	74	91	75	95	73	89	73	96	75	94	75	91	74	95	74
14...	92	78	98	75	94	69	95	75	98	71	94	75	97	72	94	74	98	73	94	73	100	73	97	75	95	74	97	74
15...	94	81	100	76	99	71	98	71	104	72	96	75	102	76	97	75	100	74	99	74	102	75	99	75	98	74	100	77
16...	95	81	101	78	104	74	98	76	108	74	99	75	105	78	102	77	102	75	105	74	105	77	102	78	98	78	102	78
17...	95	79	95	74	106	71	97	71	110	74	106	79	108	78	105	81	107	76	107	77	104	70	101	75	99	74	103	79
18...	94	78	96	68	95	72	96	73	107	74	106	75	100	76	101	79	100	76	105	80	103	74	99	70	96	68	103	72
19...	90	73	95	63	92	68	90	66	96	76	96	77	95	77	92	76	97	73	99	79	92	72	93	71	91	70	95	75
20...	90	72	97	64	93	68	91	76	99	71	96	67	98	76	91	74	98	70	97	70	93	65	93	65	93	63	95	69
21...	87	70	92	64	94	65	87	63	98	69	96	69	97	72	93	73	99	71	98	71	92	68	95	65	92	67	98	70
22...	84	65	94	54	96	63	88	52	99	59	96	65	97	68	91	67	98	65	98	68	91	55	95	60	94	61	97	67
23...	91	69	96	60	94	58	92	57	98	58	95	67	95	65	90	71	97	67	97	69	93	65	90	63	91	64	93	67
24...	92	75	97	60	86	67	91	62	92	62	88	73	84	72	87	73	93	74	85	63	90	68	94	63	94	68	95	69
25...	91	76	97	59	92	71	96	71	99	73	96	72	94	73	92	74	98	72	95	73	96	72	97	68	97	69	97	71
26...	94	77	100	55	96	69	97	68	101	69	95	67	98	71	94	74	98	73	98	69	99	66	98	66	97	65	98	68
27...	92	74	99	68	96	67	98	67	101	65	97	66	99	71	94	71	100	70	99	67	98	64	99	63	99	64	99	67
28...	96	75	101	67	96	66	100	70	101	66	100	68	99	71	97	77	102	70	103	69	102	63	100	65	100	69	100	68
29...	92	70	101	66	83	61	97	70	101	68	98	70	85	72	84	75	96	72	100	72	87	70	100	68	94	70	95	71
30...	84	66	94	72	89	54	88	54	97	66	95	66	92	66	90	70	94	68	98	70	92	63	90	67	93	68	92	70
31...	88	67	95	66	92	60	93	54	99	62	98	64	95	69	96	67	98	65	102	68	97	56	95	59	94	68	98	66
Mns	90.4	73.8	96.4	67.4	93.5	66.9	92.4	68.3	99.2	69.0	94.8	70.9	95.9	72.6	92.3	73.6	96.6	71.5	97.5	71.5	93.5	68.7	94.7	69.4	93.7	69.5	96.0	71.5

Date.	Mississippi.												Louisiana.													
	Kosciusko. #		Natchez. #		Vicksburg.		Alexandria. #		Baton Rouge. #		Covington. #		Lafayette. #		Lake Charles. #		Monroe. #		New Orleans.		Robeline. #		Schriever. #		Shreveport.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	86	69	94	71	87	70	96	72	94	63	91	68	85	70	86	65	86	72	88	73	94	68	95	67	92	70
2...	91	68	94	74	88	71	93	74	91	66	89	70	83	71	83	65	89	77	85	75	97	69	96	69	95	74
3...	92	73	94	73	90	73	95	71	88	69	81	73	86	73	92	66	90	74	89	75	96	66	89	69	95	74
4...	89	71	94	75	90	73	98	73	87	69	93	71	86	72	95	67	92	74	88	76	95	70	94	70	96	74
5...	92	71	95	73	93	73	95	73	85	68	94	71	90	72	94	68	91	74	91	77	99	71	97	70	97	75
6...	87	71	97	74	91	70	99	72	90	69	94	72	89	73	98	67	92	74	90	78	99	70	94	72	95	70
7...	81	70	91	72	85	70	92	73	89	65	81	72	85	72	92	68	88	72	80	71	89	71	93	73	92	69
8...	84	70	90	72	87	72	88	73	91	66	86	72	85	74	90	67	86	73	88	74	88	73	93	70	84	73
9...	86	72	89	72	88	74	92	71	91	67	92	73	90	72	96	67	90	73	85	76	90	71	93	72	90	71
10...	89	70	90	73	89	72	92	72	89	68	82	74	89	75	92	68	89	73	85	71	91	72	92	74	91	73
11...	89	71	91	70	88	72	90	72	85	66	86	73	83	72	90	67	89	70	88	74	90	71	90	71	90	72
12...	89	71	87	71	88	72	86	72	89	67	85	72	87	73	79	68	92	73	88	75	84	72	88	71	86	73
13...	89	70	95	73	87	72	92	72	91	68	93	71	91	73	94	67	86	74	89	76	95	73	85	71	91	73
14...	92	71	97	75	91	76	99	73	90	70	95	72	92	73	95	68	92	76	93	78	98	74	96	71	94	74
15...	94	73	97	77	93	77	99	72	95	69	97	75	92	76	96	69	95	74	94	78	99	72	98	73	98	75
16...	98	75	99	76	94	77	100	74	98	73	98	76	93	75	94	69	96	74	94	77	103	75	96	74	101	77
17...	97	75	105	78	99	79	103																			



Climatological Data for August, 1909.  
DISTRICT No. 8, TEXAS AND RIO GRANDE VALLEY.

BERNARD BUNNEMEYER, District Editor.

The month was characterized by uniformly warm weather throughout the district, by frequent and heavy showers in both Colorado and New Mexico, and by generally deficient precipitation in Texas. There were, however, heavy rains over limited areas in the last-named State. The sunshine was abundant in Texas, but considerably below the normal in Colorado and New Mexico, both of which had an unusually large number of cloudy and rainy days. In portions of New Mexico the number of rainy days exceeded 20 and the greatest reported was 27 at Hopewell in the upper Rio Grande watershed. The excess of precipitation in New Mexico, coupled with a high average temperature, explains in a large measure the remarkably rapid growth of plant life after a rather dry, backward spring and early summer in that territory.

While the average volume of water carried by the Rio Grande and Rio Pecos was much larger than during the preceding month, there was a general falling off in the other rivers of the district, except the Brazos, whose average depth was about 1 foot greater than in July. The Trinity, Neches, and Sabine were exceptionally low, and the lumber industry in east Texas suffered much from the shortage of water. A number of saw mills had to suspend operations.

The mean temperatures in the various localities of the district ranged from 56.4° at Hopewell, N. Mex., to 89.8° at Fort McIntosh, Tex. These stations are both located in the Rio Grande drainage area. In that of the Rio Pecos the extremes of mean temperature ranged from 62.8° at Windsors, N. Mex., to 82.1° at Barstow, Tex. In all other watersheds of the district the monthly mean temperature exceeded 80°, except in the extreme upper Brazos Valley where it was slightly less. There was a general excess of temperature in the district, although in scattered localities in the Rio Grande and Rio Pecos drainage areas there was a slight deficiency. The excess was greatest in the eastern portion of the district, where the mean temperature averaged from 2° to 4° above the normal. There was a well defined warm period from about the 15th to the 22d, during which temperatures of 100° and over occurred in the southeastern portion of New Mexico and throughout Texas, except the coast and extreme west. The 18th was the warmest day of the month. On this day the temperature reached 102° at Carlsbad, N. Mex., and 115° at a number of stations in the upper Trinity and upper Sabine valleys.

This high temperature has not been exceeded in any August of the past eighteen years. Toward the termination of this heated period local storms occurred in various parts of Texas. The lowest temperature was 40° and occurred at Windsors, N. Mex., on the 10th, and at San Luis, Colo., on the 28th.

The precipitation over the Rio Grande watershed exceeded the normal considerably in its upper and lower portions, but was deficient over a large stretch extending from about Rincon, N. Mex., southward nearly to Eagle Pass, Tex. Over the headwaters of the Rio Grande and over its entire watershed southward nearly to El Paso, Tex., the monthly rainfall averaged very nearly 3 inches. The greatest amount was 10.03 inches at San Rafael, and the least 0.12 inch at Orogrande. From this latter place to Maverick County, Tex., there was a decided deficiency, the average amount being much less than 1 inch; but farther down the average increased rapidly and amounted to nearly 5 inches. While the excess in the upper Rio Grande watershed was the result of thundershowers that occurred at frequent intervals throughout the month, that over the lower drainage area occurred late in the month and was caused by a tropical disturbance which moved westward over the Gulf into Mexico, reaching the upper coast of that

country on the 27th. This storm caused high tides on the coast of Texas and considerable damage by wind and water in the lower coast country. At Corpus Christi a wind velocity of 56 miles per hour was recorded on that day. The attending precipitation was exceptionally heavy, especially in northern Mexico, where it inundated the country, causing much loss of life and property, and much suffering. The lower Rio Grande rose higher than known for years and flooded the lowlands for miles, resulting in an interruption of traffic and communication and doing other damage. At the close of the month the river had begun to recede at Samfordyce, but continued at high-water mark below that place.

The rainfall over the Rio Pecos drainage area was decidedly greater than the normal southward to the Texas border line. The average over this area was 3.36 inches. The greatest amount was 10.11 inches at Harveys Upper Ranch, and the least 1.59 inches at Los Tanos. Below the Texas border line there was a marked deficiency, the average amount of precipitation being less than one-half inch.

The northern limit of the rain area attending the tropical disturbance of the 27th extended over the watershed of the Nueces, and there was therefore an excess of precipitation over the greater portion of that drainage area. The excess, however, was much less pronounced than it was over the lower Rio Grande, but it was sufficient to cause some of the smaller tributaries to overflow. The average amount approximated 2.50 inches, the greatest being 4.26 inches at Sabinal, and the least 0.91 inch at Pearsall. From the Nueces eastward to the Brazos, covering the entire drainage areas of the San Antonio, Guadalupe, Lavaca, and Colorado, there was a general deficiency in precipitation, although the deficiency was less over the Guadalupe watershed than over those of the other three rivers. A few limited areas, however, showed a moderate excess. The average amounts of precipitation in these watersheds were as follows: San Antonio, 1.44 inches; Guadalupe, 1.68 inches; Colorado, 1.22 inches; and Lavaca, 0.84 inch. The extremes were greatest in the Colorado watershed where they ranged from 0.09 inch at Llano to 2.80 inches at Austin. Conditions over the Brazos drainage area were much more favorable than over that of the Colorado. It had an average rainfall of 2.35 inches which is nearly twice that of the latter. There was, however, a decided deficiency over both the upper and lower portions, but this deficiency was very nearly offset by a large excess over the middle portion. The greatest amount was 5.47 inches at Dublin, and the least, 0.62 inch, at Abilene. The precipitation over the Trinity drainage area averaged 0.28 inch less than over that of the Brazos. It was excessively heavy over its headwaters, but there was a general deficiency south of Waxahachie. The greatest amount was 6.35 inches at Bowie, and the least, 0.32 inch, at Crockett. There was much less variation in the rainfall over the Sabine drainage area, where the amounts ranged from 0.90 inch at Greenville to 2.34 inches at Logansport, and averaged 1.81 inches. The average over the Neches watershed was 2.60 inches, but this includes excessively heavy local rains, totaling 8.09 inches, at Beaumont near the mouth of the river. Neglecting the Beaumont rains, the average would be reduced to that of the Sabine drainage area. The river stages of the Sabine, and of the Neches above Beaumont, were the lowest recorded for August in the past seven years. Most of the rains in the Texas watersheds occurred during the fore part of the month, except in those of the Nueces and lower Rio Grande, which had the heaviest rains during the third decade.

TABLE 1.—Climatological data for August, 1909. District No. 8, Texas and Rio Grande Valley.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Colorado.																				
Amethyst (near).	Mineral.	8,730	1																	Don C. La Font.
Blanca.	Costilla.	8,403	3	62.2		84	8	42	28	38	4.07		1.37	0.0	18	2	29	0	sw.	L. C. Audrain.
Cumbres.	Conejos.	10,015	3																	Venita A. Good.
Garnett.	Costilla.	7,576	16	63.2	+ 2.5	84	22	42	5	39	1.47	+ 0.17	0.80	0.0	5	4	21	6	se.	Chas. Speiser.
Hermit.	Hinsdale.	9,843									3.11		0.50	0.0	20					C. C. Mason.
La Veta Pass.	Costilla.	9,000									3.35		0.90	0.0	11	10	16	5	w.	Norvin R. Lively.
Manassa.	Conejos.	7,700	3	62.5		83	17	41	19	36	1.15		0.35	0.0	5	3	12	14	se.	J. B. Chapman.
Platoro.	do.	9,675	2																	Walter R. Hook.
Saguache.	Saguache.	7,740	17																	Eugene Williams.
San Luis.	Costilla.	7,794	18	62.0	- 0.1	85	22	40	28	37	3.55	+ 2.14	0.63	0.0	16	5	25	1	sw.	P. B. Albright.
Wagon Wheel Gap.	Mineral.	8,434	10																	Ellwood Bergey.
New Mexico.																				
Agricultural College.	Dona Ana.	3,863	43	79.0		96	17	60	77	36	1.11	- 0.60	0.78	0.0	4	8	23	0		N. M. Agric. College.
Alamogordo (near).	Otero.	4,338	9	77.2		98	57	56	11	39	1.88		0.85	0.0	8	15	11	5	w.	Jas. C. Dunn.
Alamogordo.	do.	4,320									1.75		1.01	0.0	6					Agent E. P. & S. W. R. R.
Albuquerque.	Bernalillo.	5,200	34																	University of N. M.
Amisett.	Taos.	9,018									6.05		0.97	0.0	26	2	22	7	ne.	Geo. W. Oates.
Ancho.	Lincoln.	6,112																		Agent E. P. & S. W. R. R.
Aspen Grove Ranch.	Rio Arriba.	9,000									2.30		0.40	0.0	9	8	10	13		Junius D. Maupin.
Bateman Ranch.	do.	8,900																		John W. Bateman.
Bluewater.	Valencia.	6,732	8	66.6		88	22	50	25	37	4.09		0.63	0.0	14	4	21	6	w.	Bluestwater Developm't Co.
Bluewater Reservoir.	do.	9,000									3.73		0.71	0.0	12	3	27	1		Do.
Boas.	Chaves.	4,154		75.0		98	17	57	25	37	1.60		0.61	0.0	5	11	15	5	s.	D. C. Savage.
Capitan.	Lincoln.	6,348									2.34		0.85	0.0	8	4	24	3		Agent E. P. & S. W. R. R.
Carlsbad.	Eddy.	3,120	15	79.0	- 0.8	102	18	58	25	38	1.67	- 0.60	0.83	3.0	6	8	19	4	se.	U. S. Reclamation Serv.
Carrizozo (1).	Lincoln.	5,429	2	72.4		92	57	52	16	37	2.67		0.75	0.0	10	2	24	5	se.	A. H. Harvey.
Carrizozo (2).	do.	5,438									2.62		0.86	0.0	8	20	11	0	sw.	Agent E. P. & S. W. R. R.
Chama.	Rio Arriba.	7,851	8	64.1		87	17	46	97	36	3.22	+ 0.50	0.46	0.0	14	2	24	5	sw.	Frank C. Johnson.
Cloudcroft (1).	Otero.	8,650	7																	M. P. Coakly.
Cloudcroft (2).	do.	8,650									3.34		0.62	0.0	10	16	4	11	s.	Agent E. P. & S. W. R. R.
Corona.	Lincoln.	6,666									3.35		0.78	0.0	9	1	22	8	n.	Do.
Coyote.	do.	5,800									2.99		0.81	0.0	10	11	8	12	e.	Do.
Cundiyo.	Santa Fe.	6,889									3.24		0.72	0.0	18	4	17	10	w.	Teofilo Vilil.
Demonstration Farm.	San Miguel.	6,800	1								3.70		1.22	0.0	8					Erb and Westerman.
Duran (1).	Torrance.	6,272	1	70.1		90	57	51	25	34	2.81		1.26	0.0	6	9	18	4	w.	W. H. Birkhead.
Duran (2).	do.	6,272									2.77		1.20	0.0	7	8	21	2		Agent E. P. & S. W. R. R.
Edison Mine.	Taos.	10,600																		Frank L. Paxton.
Elk (near).	Chaves.		10	67.6	- 2.3	85	67	45	25	32	4.58	+ 1.31	1.54	0.0	8	10	19	2	e.	Boyd Williams.
Escondido.	Otero.	4,014									0.85		0.40	0.0	3	21	1	9	w.	Agent E. P. & S. W. R. R.
Espanola.	Rio Arriba.	5,590	13																	Mrs. E. F. McBride.
Estancia.	Torrance.	6,140	4	72.9		98	17	50	47	46	1.30		0.35	0.0	11	18	13	0	e.	Agent N. M. Cent. R. R.
Fort Stanton.	Lincoln.	6,231	30	67.8	+ 0.7	90	6	47	25	37	3.54	+ 0.07	2.09	0.0	11	13	11	7	se.	U. S. Sanitarium.
Fort Sumner.	Guadalupe.	3,960	7	77.2		101	17	55	24	39	1.70		0.59	0.0	9	28	2	1	sw.	F. A. Manzanares.
Gallinas.	Lincoln.	6,635									2.47		0.75	0.0	7	21	8	2		Agent E. P. & S. W. R. R.
Gallinas Planting Stat'n.	San Miguel.	7,500	3	63.8		89	1	48	11	39	6.98		1.12	0.0	23	1	26	4	nw.	U. S. Forest Service.
Harvey's Upper Ranch.	do.	9,400									10.11		1.41	0.0	23	2	14	15	se.	Simon B. Warner.
Hillsboro.	Sierra.	5,224	10	75.0	+ 0.4	94	1	59	177	34	2.39	+ 0.10	0.72	0.0	10	19	12	0	w.	J. M. Webster.
Hodges.	Taos.	8,484									4.18		0.65	0.0	13	11	6	14	nw.	Ralph W. Johnson.
Hondo Reservoir.	Chaves.	3,904	1	76.6		98	107	58	247	36	2.36		1.04	0.0	7	19	10	2	se.	U. S. Reclamation Serv.
Hope.	Eddy.		3																	N. L. Johnson.
Hopewell.	Rio Arriba.	9,500		56.4		76	16	41	97	32	6.62		2.05	0.0	27	0	7	24	sw.	John T. Blanton.
Laguna.	Valencia.	5,840	5	71.6		92	17	52	13	38	3.25		1.25	0.0	5	5	24	2	w.	Gus Weiss.
Lagunita.	Guadalupe.	4,500	5	75.0		96	6	52	9	34	2.25		1.38	0.0	7	21	7	2	s.	P. A. Turnbull.
La Huerta.	Eddy.	3,111	1								1.84		1.22	0.0	5	16	12	3	se.	D. Barclay Sutherland.
Lake Valley.	Sierra.	5,415	5								2.86		0.52	0.0	13	3	26	1	sw.	Wm. P. Keil.
Las Vegas.	San Miguel.	6,384	23	68.6	+ 0.8	92	22	50	57	42	5.99	+ 2.63	1.57	0.0	14	10	19	2	w.	Dr. Wm. C. Bailey.
Los Lunas (near).	Valencia.	4,900	18	75.0	+ 1.5	96	1	56	287	34	0.44	- 0.71	0.22	0.0	4	7	24	0		Richard Pohl.
Los Tanos.	Guadalupe.	4,919									1.59		0.60	0.0	7	14	6	11	s.	Agent E. P. & S. W. R. R.
Magdalena.	Socorro.	6,557	4	68.0		88	17	51	2	33	3.57		0.75	0.0	9	7	22	2	w.	Wm. Pender.
Mineral Hill.	San Miguel.	7,050	5								4.92		0.30	0.0	10	0	25	6	sw.	W. M. Nelson.
Monument.	Eddy.	3,500	4																	James M. Cook.
Mountainair.	Torrance.	6,547	7	69.2		93	6	51	31	37	2.53		0.38	0.0	14	12	18	1	sw.	John W. Corbett.
Newman.	Otero.	3,989									0.69		0.26	0.0	7	18	0	13		Agent E. P. & S. W. R. R.
Noria.	Dona Ana.	4,414									0.29		0.08	0.0	3	28	0			Do.
Orogrande.	Otero.	4,171									0.12		0.06	0.0	3	4	22	5	e.	Do.
Oscuro (near).	Lincoln.	5,016									1.35		0.29	0.0	11					Eugene F. Jones.
Oscuro (2).	do.	5,016									1.34		0.24	0.0	10	11	17	3	sw.	Agent E. P. & S. W. R. R.
Otis.	Eddy.	3,100									1.16		0.50	0.0	6	25	3	3	sw.	A. M. Hove.
Otto.	Santa Fe.	6,200									2.00		0.65	0.0	15					Otto Goetz.
Pastura.	Guadalupe.	5,285									2.75		1.20	0.0	7	15	7	9	sw.	Agent E. P. & S. W. R. R.
Red River.	Taos.	8,650		59.8		86	8	38	31	42	4.87		0.75	0.0	13	8	19	4	w.	Mrs. L. R. Penn.
Rincon.	Dona Ana.	4,030	11	78.0	+ 0.4	97	7	57	31	35	1.75	- 0.73	0.50	0.0	3	7	20	4	se.	Chas. H. Raitt.
Rio Grande Dam.	Sierra.	4,265	11	79.2	+ 3.4	98	6	59	31	35	1.50	- 1.23	0.41	0.0	10	16	9	6	sw.	U. S. Reclamation Serv.
Rosedale.	Socorro.	6,910	5	67.2		85	17	51	9	28	4.32		0.90	0.0	22	8	8	15	w.	W. H. Martin.
Roswell.	Chaves.	3,578	12	76.2	- 0.4	97	17	57	25	34	2.01	+ 0.55	1.30	0.0	5	15	12	4	s.	U. S. Weather Bureau.
San Marcial.	Socorro.	4,439	14	76.8	- 0.2	97	17	58	25	34	1.83	- 0.21	0.50	0.0	7	7	20	4	se.	Agent A. T. & S. F. R. R.
San Rafael.	Valencia.	6,509	6	69.8		88	17	53	67	33	10.03	+ 7.25								



TABLE 1.—Climatological data for August, 1909. District No. 8—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Texas—Cont'd.																				
Alvin.	Brasoria.	49	10								2.14	- 2.06	3.86	0.0	5	16	8	7	s.	F. A. Smith.
Anahuac.	Chambers.										1.79		1.35	0.0	4				s.	B. H. Collins.
Austin.	Travis.	650	23								2.80	+ 0.44	1.64	0.0	9	13	16	2	s.	A. Deussen.
Ballinger.	Runnels.	1,637	14	82.8	+ 0.6	108	18	62	23	43	2.33	+ 0.02	1.60	0.0	4	17	11	2	s.	E. M. Eubank.
Barstow.	Ward.	2,573	2	82.1		102	19	60	24	35	0.10		0.10	0.0	4	27	4	0	se.	W. H. Denis.
Beaumont.	Jefferson.	29	12	84.0	+ 0.6	102	18	70	17	26	8.09	+ 3.91	3.88	0.0	9	13	0	18	se.	Jno. Bender.
Beeville.	Bee.	225	13	84.0	+ 1.2	106	19	68	18	37	4.35	+ 2.43	1.45	0.0	7	10	11	10	se.	L. E. Dickey.
Big Springs.	Howard.	2,396	7	84.2 <sup>b</sup>		107	18	65	23	40	1.23	- 0.47	0.56	0.0	5	6	23	2	s.	B. Reagan.
Blanco.	Blanco.	1,350	13	82.9 <sup>b</sup>	+ 1.6	107	18	63	23	33	1.24	- 0.48	0.49	0.0	4	24	0	7	s.	R. C. Crist.
Boerne.	Kendall.	1,412	17	80.3	- 1.3	109	19	61	12	39	0.88	- 1.18	0.48	0.0	4	16	11	4	e.	F. W. Schewepe.
Booth.	Fort Bend.	81	8								1.56	- 1.86	0.37	0.0	6	25	1	5	e.	T. R. Booth.
Boquillas.	Brewster.																			M. A. Ernst.
Bowie.	Montague.	1,113	9	85.2	+ 2.7	108	5	68	14	34	6.35	+ 4.75	4.96	0.0	8	10	20	1	ne.	Craig Anderson.
Brasoria.	Brasoria.	25	20	83.7	+ 2.9	100	18	69	24	26	2.96	- 2.10	0.99	0.0	8	26	3	2	s.	Mrs. M. A. Stephens.
Brasos.	Palo Pinto.	801									2.60		0.90	0.0	4	21	3	7	se.	Robt. E. Boyett.
Brenham.	Washington.	350	20	85.8	+ 1.9	111	19	72	21	33	2.83	+ 0.38	2.26	0.0	4	16	9	6	ne.	Mrs. B. F. Sloan.
Bridgeport.	Wise.	754									0.64		0.24	0.0	4					Thos. C. West.
Brighton.	Nueces.	12	13	82.8	- 0.3	96	21	73	10	21	2.88	+ 1.23	1.06	0.0	9	16	13	1	e.	G. H. Ritter.
Brownsville.	Cameron.	38	20	83.1	- 1.1	98	18	71	5	25	5.60	+ 2.82	2.78	0.0	9				e.	U. S. Weather Bureau.
Brownwood.	Brown.	1,342	19	84.2	+ 1.1	104	6	62	23	38	1.00	- 1.34	0.65	0.0	5	12	16	3	s.	Mrs. Pearl Smith.
Camerton.	Milan.		1	87.8		113	17	71	22	36	1.67		1.35	0.0	5	18	12	1	s.	J. E. Watts.
Carmona.	Polk.		1	84.8		108	18	64	22	36	1.59		0.69	0.0	4	19	12	0	e.	G. S. Warner.
Claytonville.	Fisher.	2,100	5	83.8		104	18	58	23	37	0.79	- 1.43	0.37	0.0	2	15	7	9	se.	Wm. Lanus.
Coleman.	Coleman.	1,710	15																	J. H. Tucker.
Colorado.	Mitchell.	2,066	15	82.0	- 1.3	106	17	62	18	43	1.69	- 0.41	0.44	0.0	6	21	9	1	s.	R. M. Webb.
Columbia.	Brasoria.	34	20	83.2	+ 1.4	102	18	64	23	30	2.56	- 1.20	0.81	0.0	6	20	8	3	s.	R. B. Loggins.
Columbus.	Colorado.	206	5								1.18	- 0.50	0.66	0.0	3	17	4	10	s.	Mrs. Sophie Bridge.
Comstock.	Valverde.			83.9		105	19	68	28	31	0.42		0.33	0.0	2	22	9	0	se.	A. D. Brown.
Corpus Christi.	Nueces.	20	22	82.7	+ 0.6	95	21	73	9	18	3.71	+ 1.43	1.25	0.0	10	15	9	7	se.	U. S. Weather Bureau.
Coriscana.	Navarro.	445	20	86.4	+ 3.5	112	18	68	26	35	0.87	- 1.16	0.36	0.0	6	26	0	5	ne.	E. L. Gibson.
Crockett.	Houston.	350	5	87.4		114	18	70	17	40	0.32		0.15	0.0	3	12	15	4	s.	A. M. Bencher.
Cuerpo.	DeWitt.	177	20	86.6	+ 1.8	109	20	70	7	37	1.44	- 0.39	0.42	0.0	10	20	3	8	s.	H. R. Forbese.
Dallas.	Dallas.	466	20	86.4	+ 3.2	115	18	65	23	38	1.58	+ 0.32	0.88	0.0	6	18	2	11	s.	G. A. Eisenlohr.
Danevang.	Wharton.	145	13																	H. P. Hermansen.
Decatur.	Wise.	1,047	3	86.1		108	5	67	23	35	3.65		2.60	0.0	5	21	0	10		Agent Ft. W. & D. C. Ry.
Del Rio.	Valverde.	952	3	85.4	+ 1.4	108	19	68	30	36	0.31	- 2.38	0.26	0.0	2	21	9	1	e.	U. S. Weather Bureau.
Dialville.	Cherokee.	575	11	85.2	+ 2.8	111	18	69	23	34	3.92	+ 0.70	2.25	0.0	4	14	12	5	s.	J. M. B. McKnight.
Dublin.	Erath.	1,466	14	83.6	+ 1.5	103	6	70	23	30	5.47	+ 3.74	3.82	0.0	5	13	14	4	s.	Jno. O. Shafer.
Duval.	Travis.	820	20	84.6	- 0.6	108	18	71	17	33	1.17	- 0.59	0.45	0.0	4	18	8	5	s.	J. C. Edgar.
Eagle Pass.	Maverick.	800	20	89.6	+ 3.7	112	20	71	27	33	1.82	- 0.76	1.00	0.0	4	6	21	4	se.	Jos. Metcalfe.
Edna.	Jackson.										1.20		0.40	0.0	4					E. L. Faires.
El Paso.	El Paso.	3,762	30	79.8	+ 1.2	95	16	62	31	29	0.51	- 1.21	0.15	0.0	7	12	16	3	e.	U. S. Weather Bureau.
Encinal.	La Salle.		1	86.7		110	19	70	24	34	3.27		0.95	0.0	5	9	10	7	se.	H. C. Braden.
Fairland.	Burnet.			86.7		114	18	69	23	43	0.53		0.23	0.0	7	17	14	0	ne.	R. L. Bush.
Falfurrias.	Starr.		2	84.4		107	18	66	18	41	11.19		5.16	0.0	7	17	8	6	se.	W. A. Gardner.
Flatonia.	Fayette.	465	1	84.2	+ 0.3	107	18	69	20	38	2.26		0.91	0.0	8	15	14	2	s.	Julius Laux.
Fort Clark.	Kinney.	1,050	22	85.3	+ 0.3	106	17	69	29	29	0.49	- 1.44	0.35	0.0	2	27	2	2	e.	Post Surgeon.
Fort McIntosh.	Webb.	460	23	89.8	+ 3.0	110	18	72	24	31	3.27	+ 0.54	1.57	0.0	6	14	0	17		Do.
Fort Stockton.	Pecos.	3,050	4								1.02		0.42	0.0	4					H. H. Butz.
Fort Worth.	Tarrant.	670	14	85.6	+ 2.7	112	18	70	24	35	2.38	+ 0.51	1.00	0.0	8	13	15	3	s.	U. S. Weather Bureau.
Fredericksburg.	Gillespie.	1,742	20	81.8	+ 1.1	104	18	65	24	35	1.76	- 0.68	0.70	0.0	7	10	19	2	s.	Arthur Striegler.
Gainesville.	Cooke.	738	20	86.4	+ 3.8	111	18	64	23	36	2.57	+ 0.31	0.85	0.0	11					J. L. Hickson.
Galveston.	Galveston.	69	39	83.4	+ 0.8	95	18	71	7	18	4.06	- 0.95	1.83	0.0	9	15	13	3	se.	U. S. Weather Bureau.
Gatesville.	Coryell.	795	5	85.5		110	17	69	19	38	2.40		1.00	0.0	4	21	10	0		John Ryan.
Georgetown.	Williamson.	750	14	85.6	+ 2.0	112	18	68	23	40	1.00	- 0.87	0.51	0.0	5	15	16	0	sw.	Prof. R. E. Young.
Gonzales.	Gonzales.	299	4								2.42		1.03	0.0	7	24	4	3	s.	J. M. Johnson.
Graham.	Young.	1,040	5	83.8		108	4	54	24	42	5.40		2.85	0.0	5	20	3	5	s.	C. W. Johnson.
Grandfalls.	Ward.																			W. C. Bridwell.
Grapevine.	Tarrant.	670	19	86.6	+ 2.9	115	18	69	23	30	0.63	- 0.96	0.20	0.0	5	9	10	6	s.	W. J. Crowley.
Greenville.	Hunt.	550	9	87.4		115	18	67	23	39	0.90		0.45	0.0	4	17	0	14	e.	J. P. Regan.
Hallettsville.	Lavaca.	235	18	84.7	+ 1.0	104	20	69	17	31	0.49	- 1.62	0.39	0.0	2	21	6	4	s.	Dr. J. E. Lay.
Haskell.	Haskell.	4,013	18	85.1	+ 1.2	109	6	65	23	38	2.17	+ 0.66	1.78	0.0	3	13	9	9	s.	P. D. Saunders.
Hebronville.	Duval.		2								7.38		4.20	0.0	4					Henry Edds.
Hempstead.	Walker.	254	5								1.88		0.90	0.0	5	13	8	10	s.	J. H. Hancock.
Henderson.	Waller.										1.68		0.82	0.0	3	19	10	2		M. Kangerga.
Hewitt.	Rusk.																			I. H. Earle.
Hillsboro.	McLennan.	664																		

TABLE 1.—Climatological data for August, 1909. District No. 8—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.		
Texas—Cont'd.																			
Panther	Hood	1,000	19								2.08	- 1.33	1.62	0.0	4				E. H. Snider.
Porce	Wharton		3	80.2		96	18	66	23†	25	1.62		0.54	0.0	6	12	16	3	R. B. Pointer.
Plainview	Hale	3,370	1	77.7		100	17	58	24	36	1.15		0.85	0.0	3	14	16	1	J. F. Sander.
Port Lavaca	Calhoun	20	8	84.9		100	18	71	23	27	1.49		0.77	0.0	3	16	11	4	J. H. Bickford.
Ricardo	Nueces			85.2		107	19	68	18	38	7.46		5.71	0.0	8	17	12	2	Lindsay Waters.
Riverside	Walker	169	5								4.25		2.00	0.0	3	20	1	10	Mrs. C. W. Higdon.
Robert Lee	Coke	1,850	1	83.0		104	18	63	23	30	0.88		0.50	0.0	4	20	8	3	H. D. Pearce.
Rockland	Tyler	136	5								1.35		0.64	0.0	5	22	3	6	D. W. Bellamy.
Rossville	Atascosa	558	2	85.8		108	19†	69	23†	35	2.12		0.79	0.0	6	8	22	1	W. F. M. Ross.
Runge	Karnes	308	14								1.73	+ 0.42	0.86	0.0	3				Reiffert & Froese.
Sabinal	Uvalde	964	5	85.8		110	4†	69	3†	37	4.26		2.75	0.0	6	5	12	14	Jas. Johnston.
San Angelo	Tom Green		1																C. W. Goff.
San Antonio	Bexar	701	24	84.4	+ 2.4	107	20	70	25	31	1.70	- 1.00	0.65	0.0	7	14	13	4	U. S. Weather Bureau.
San Augustine	San Augustine			85.2		112	18	67	21	38	1.69		0.65	0.0	6	15	12	4	F. A. Wilson.
San Juanita	Hidalgo			89.0		106	18†	71	28	32	6.08		3.39	0.0	7	4	17	10	J. B. McAllen.
San Marcos	Hayes	588	16	83.6	+ 0.2	105	18†	67	17	37	2.11	+ 0.40	0.74	0.0	6	22	0	9	Miss L. C. Ford.
San Saba	San Saba	1,712	5	83.6		109	18	63	24	43	0.41		0.18	0.0	4	19	12	0	Jas. Burns.
Santa Gertrudes	Nueces		7								5.81		1.90	0.0	6				J. B. Wright, jr.
Seymour	Baylor	1,180	3	84.4		106	7	65	23	34	2.86		1.15	0.0	4	21	7	3	F. M. Deaver.
Somerville	Burleson	251						67	31		0.76		0.70	0.0	3	11	0	20	W. A. Dolan.
Sonora	Sutton	2,200	6	80.7		106	19	60	23†	44	1.74		0.64	0.0	6	1	30	0	Mike Murphy.
Sugarland	Fort Bend	79	11	84.9	+ 1.7	108	18	69	4†	33	3.37	+ 0.27	2.50	0.0	6	21	9	1	O. M. Bakke.
Taylor	Williamson	583	8	84.4	+ 2.7	109	18	68	20	35	2.73	+ 0.26	1.95	0.0	6	21	8	2	U. S. Weather Bureau.
Temple	Bell	630	15	85.9	+ 3.3	110	18	68	21	35	4.94	+ 3.04	2.14	0.0	5	20	6	5	W. B. Tyer.
Tilden	McMullen		3	87.5		113	19	69	23	42	3.20		1.11	0.0	5	5	18	4	Wm. Kuykendall.
Uvalde	Uvalde	937	1	85.8		110	18†	69	23†	40	3.13		1.38	0.0	6	18	0	13	F. M. Getzendaner.
Valley Junction	Robertson	289	4								1.00		1.00	0.0	1	23	0	8	T. M. Williams.
Victoria	Victoria	187	11	84.4	+ 1.9	101	18†	71	21†	27	2.51		1.12	0.0	5				C. C. Zirjacks.
Waco	McLennan	424	20	87.6	+ 2.8	109	18	73	17†	34	3.16	+ 1.19	1.71	0.0	7	21	2	8	E. H. Hall.
Waxahachie	Ellis	556	13	85.2	+ 0.6	115	18	64	22	41	1.36	- 0.39	0.59	0.0	7	21	3	7	C. D. Longserre.
Weatherford	Parker	864	20	85.2	+ 2.7	107	18	68	23	34	2.93	+ 1.26	1.26	0.0	8	22	2	7	Miss J. Stickfort.
Wharton	Wharton	105	7	83.2		97	6†	69	31	26	0.20		0.20	0.0	1	23	3	5	Mrs. F. M. Hughes.
Wills Point	Van Zandt	524	4	87.0		115	18	70	10†	43	1.89		0.92	0.0	4				W. W. Gibbard.
Zapata	Zapata			89.2		114	21	69	24	40	7.50		3.10	0.0	7	12	11	8	F. H. Earnest.

- \* Precipitation included in that of the next measurement.  
† Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.  
‡ Also on other dates.  
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.  
|| Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.  
||| Estimated by observer.  
¶ Precipitation for the 24 hours ending on the morning when it is measured.  
T. Precipitation is less than 0.01 inch rain or melted snow.  
\*, †, ‡, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.



Stations.	River basins.	Day of month.																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
<b>Colorado</b>																																	
Amethyst (near)	Rio Grande																																
Blanca	Trinchera	.06	.08	.09	T.	T.			.18	T.	.49	1.37	T.	.30	.07				.70	.21	.02		.01	.08	.10	.01			.20	.09	.01	4.07	
Cumbres	do																															3.11	
Garnett	Rio Grande																															1.47	
Hermit	do	.02	.12	.50	.05	.26	.06	.20	.03	.45	.05	.11	.15		.10	.14							.30	.32				.29	.08	.16	.10	.09	3.35
La Veta Pass	Trinchera		T.	.16			T.		.13				T.	.13					.18			.10	.90		.35		.20	.22	.18	.80		3.35	
Manassa	Conejos	T.		.20					T.	T.	T.				.35			.15	T.					T.	T.	.25		T.	.20	T.	1.15		
Platoro	do																																
Saguache	San Luis																																
San Luis	Culebra	.05	T.					.12	.14	.35	.25						.55				.49		.65		.11			.02			.18	2.91	
Wagon Wheel Gap	Rio Grande																																
<b>New Mexico</b>																																	
Agricultural College	Rio Grande												.10	.78		.06	*	.85	.02								.23	T.		.17	1.11		
Alamogordo (near)	do	.10		.08					*	.60																						1.88	
Alamogordo (2)	do	.02						.11	.20			.10										1.01								.31		1.75	
Albuquerque	do																																
Amizett	do	.04	.03	.05	.35	.01			.12	.04	.29	T.	.03	T.	.04	.63	.03	.41	.04	.45	.34	.25	.32	.68	.43	.97	.07	.04		.01	.37	.01	6.05
Ancho	do																																
Aspen Grove Ranch	do					.25											.10					.30	.30		.40	.12	.28			.30	.25	2.30	
Bateman's Ranch																																	

## MONTHLY WEATHER REVIEW.

AUGUST, 1909

TABLE 2.—Daily precipitation for August, 1909. District No. 8—Continued.

		Day of month.																															Total.	
Stations.	River basins.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Texas—Cont'd.																																		
Big Springs	Colorado		T.	T.	T.				.04	T.	T.	.20									.25	.56	T.	.18						T.			1.23	
Blanco	Guadalupe								.49		.16																		.35			.24	1.24	
Boerne	San Antonio						.12				.48																	.20	.08				0.88	
Booth	Brazos						.37	.37						.18	.32							.18							.24			1.56		
Boquillas	Rio Grande																																	
Bowie	Trinity																																	
Brasoria	Brazos	.03			.64	.02			.20		.15	.04				.21	.82	.14				.77			.02						T.		6.35	
Brasos	do.						.35	.75			.50	T.	T.	T.	.75	.01	.90					.02			T.	T.	T.	.60					2.96	
Brenham	do.							.08	.43													2.26							T.				2.60	
Bridgeport	Trinity							.09							.24							.21			T.		.10						2.83	
Brighton	Coast						.40	.35	.02	.02	.01														T.		.03	.20	.06	.77			0.64	
Brownsville	Rio Grande				T.		.33	.26	.05	.39																	.48	.41	.27	.46	.44		5.60	
Brownwood	Colorado				T.		.08	T.	.10	.65				.10	T.							T.									.10		1.00	
Cameron	Brazos	.01						.05								1.35					.18												1.67	
Carmona	Neches	T.		T.				.47	T.					.69											T.							.38	T.	1.59
Claytonville	Brazos							.37		.42																							0.79	
Coleman	Colorado																																	
Colorado	do.				.06						.38	.40	.33									.44					.08						1.69	
Columbia	Brazos						.51	.41	.06	.27					T.										T.		.50	.91					2.56	
Columbus	Colorado							.36	.16	T.												.66											1.18	
Comstock	Rio Grande																																0.42	
Corpus Christi	Coast		T.						T.	.86	.19	.04	T.		T.							T.	.54				.57	.04	.124	.33	.09		3.71	
Corsicana	Trinity	.02							T.	.36	.33				.10	T.							.02										0.87	
Crockett	do.		T.						.15	.03					.14										T.								0.32	
Cusco	Guadalupe								T.	.24	.02	.13																					1.44	
Dallas	Trinity		T.				.88		.14	.16													.22			.06	.12					.14	.42	1.58
Dancavang	Coast																																	
Deceatur	Trinity		T.						.20	T.				1.30	1.30	T.																		
Del Rio	Rio Grande						.50																											
Dialville	Neches	T.						T.	T.	T.	T.																							3.65
Dublin	Brazos						T.	T.	2.25							.60																	0.31	
Duval	Colorado								.37							.38	.82																3.92	
Eagle Pass	Rio Grande								T.	T.																								5.47
Edna	Lavaca						.25	T.																									1.17	
El Paso	Rio Grande							T.	.08					.20	.35																		1.82	
Encinal	Nueces										.95	.51				.13	.01	.12	T.	.02	T.												1.20	
Fairland	Colorado	T.						.04		T.					.03	.02																	0.51	
Falfurrias	Coast				.36					.94	.23											.02	.01	1.03								.23	0.53	
Flatonia	Guadalupe									.55	.10																						11.19	
Fort Clark	Rio Grande																																2.26	
Fort McIntosh	do.										.11	1.00																					0.49	
Fort Stockton	Pecos									.18					.42																		3.27	
Fort Worth	Trinity	T.							.20	.08					.05	.95																	1.02	
Fredericksburg	Colorado						.02	.50	.01			.35										.18		.31									.60	2.38
Gainesville	Trinity	.17					.02	.37	.05	.02				.11	.18	.63							.12										1.76	
Galveston	Coast	.29	T.				1.83	1.18		.11	.10	.45																					.85	2.57
Gatesville	Brazos								.70					.60							1.00				.01	.01							4.06	
Georgetown	do.						T.		.09					.51																			2.40	
Gonsales	Guadalupe										1.03	.35		.45								.27											1.00	
Graham	Brazos							102	.85					1.05									.39										1.20	
Grandfalls	Pecos																																	
Grapevine	Trinity			T.				.14						.02	.15																			
Greenville	Sabine	.45							.20																									0.90
Hallettsville	Lavaca								.10	T.	T.																						0.49	
Haskell	Brazos						.70	.08																									2.17	
Hebbronville	Coast									1.18	.20																						7.38	
Hempstead	Brazos						.22				.11				.90	T.																	1.68	
Henderson	Neches							.82	T.						.11																		1.89	
Hewitt	Brazos						T.	T.	.08	1.35				.46	.80																		2.88	
Hillsboro	do.								1.23																								1.89	
Hondo	Nueces								.85																									1.32
Houston	Coast		T.					T.	.35	T.				.10	.12	T.																.02	0.78	
Hubbard	Trinity																																	
Huntsville	do.			T.					T.	.20				.19																		.25	0.64	
Jewett	do.	T.			T.						1.45			.32	.14											T.							1.91	
Junction	Colorado																																	
Kaufman	Trinity	1.16							.50						.20																			1.86
Keene	Brazos																																	
Kerrville	Guadalupe								T.			.20			.21																			0.95
Knickerbocker	Colorado		T.	.09	T.		.25	.08	.37					.12															.23	.05	.31			
Kopperl	Brazos									3.94																								4.58
Lampasas	do.		.06												.07																			1.05
La Parra	Coast				.67						1.42																							8.52
Laureles Ranch	do.																																	
Liberty	Trinity	T.		T.			.89		.42	.16																								



TABLE 2.—Daily precipitation for August, 1909. District No. 8—Continued.

Stations.	River basins.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Texas—Cont'd.																																		
San Juanita	Coast									.25	.34														.21		.16		3.39	.53	1.20			6.08
San Marcos	Guadalupe								.50		.10	.20											.10				.47				.74		2.11	
San Saba	Colorado								.02																		.17					.04	.18	0.41
Santa Gertrudes	Coast	1.90								.37	.42																		1.73	.94		.45		5.81
Seymour	Brazos									.78												.01									1.15		2.86	
Somerville	do.								T.		T.		.04									.70									.02		0.76	
Sonora	Rio Grande		.04						.52	.64			.10														.16				.28	T.	1.74	
Sugarland	Brazos	T.						.36	.34	T.		.02	.13								2.50				T.	T.					.02		3.37	
Taylor	do.	T.					.50	.01		.10		T.	.12								1.95				T.	T.					.05		2.73	
Temple	Brazos							.10	T.	.45			2.14	1.40								.85				T.	T.						4.94	
Tilden	Nueces				T.							.85											.10				T.	T.	1.11	.98		T.	3.20	
Uvalde	do.								1.38	.15																	.80			.20	.50		1.00	
Valley Junction	Brazos									1.00																							1.00	
Victoria	Guadalupe							.60		.10			1.12															.15					2.51	
Waco	Brazos									.56	1.71				.31	.12																	2.27	
Waxahachie	Trinity	.17				T.	.05		.33	.03	T.		T.		.31	.12					.59	.14					.10	.09					T.	1.36
Weatherford	do.								.18	1.26			.12	.40	.24												.02	.34	T.				2.93	
Wharton	Colorado																														.20			0.20
Wills Point	Sabine								.92				.08	T.								T.											.47	
Zapata	Rio Grande								2.71	.06	T.															.42	T.						7.50	

TABLE 3.—Maximum and minimum temperatures at selected stations August, 1909. District No. 8, Texas and Rio Grande Valley.

Date.	Colorado.				New Mexico.																Texas.									
	Garnett.		San Luis.		Agricultural College.		Carlsbad.		Fort Stanton.		Mountainair.		Rosendale.		Roswell.		Santa Fe.		Santa Rosa.		Abilene.		Big Springs.		Brownsville.		Corpus Christi.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1...	82	44	76	47	96	69	96	65	87	52	87	54	81	57	92	64	79	53	95	63	99	74	99	73	92	76	89	76		
2...	78	48	75	47	95	64	93	62	85	50	87	53	80	56	92	61	78	57	95	61	96	72	101	73	92	76	89	80		
3...	79	45	71	46	96	63	92	65	83	51	85	53	82	58	90	64	76	57	95	62	97	74	100	74	94	74	86	78		
4...	75	45	64	49	93	66	92	64	83	51	85	54	80	55	91	64	73	56	95	60	99	76	98	75	92	74	89	78		
5...	81	42	78	42	95	65	96	63	87	56	90	53	83	55	93	61	80	56	99	62	99	76	101	73	96	71	88	77		
6...	83	45	80	46	96	65	98	67	90	56	93	58	81	56	95	65	81	56	99	69	99	76	103	75	96	74	88	78		
7...	83	48	80	47	96	69	94	66	82	55	89	57	83	58	94	62	81	58	99	66	99	78	103	75	94	73	88	80		
8...	82	50	82	49	92	67	92	71	80	57	88	57	81	54	88	64	78	62	93	69	89	72	103	67	90	74	85	77		
9...	80	46	76	45	91	61	90	60	79	54	75	53	75	51	85	69	74	54	85	64	85	71	85	74	86	74	86	73		
10...	81	52	72	54	92	68	89	68	78	55	80	54	78	53	88	64	74	57	87	60	88	72	89	76	89	76	87	77		
11...	80	44	79	44	94	72	91	67	80	56	88	53	77	56	91	64	79	56	94	64	93	71	99	68	86	75	86	76		
12...	83	51	82	48	96	64	95	66	83	55	91	57	80	56	91	65	80	56	99	64	94	72	100	69	91	75	87	77		
13...	80	45	80	46	91	68	98	70	86	59	88	56	81	59	93	67	82	58	97	65	84	66	91	73	91	78	89	80		
14...	82	49	79	50	92	67	92	69	82	57	87	56	79	57	91	66	77	59	92	64	94	72	98	73	91	77	88	80		
15...	81	45	80	57	91	66	96	70	83	54	84	54	75	53	95	66	77	58	92	65	95	73	100	73	92	74	88	78		
16...	80	45	80	48	93	65	99	65	86	52	90	56	83	55	95	63	81	56	95	61	97	71	103	73	94	74	90	75		
17...	81	47	81	48	94	67	100	62	87	54	87	58	85	57	97	63	85	60	92	62	101	73	106	66	96	74	92	74		
18...	83	50	75	56	92	67	102	64	82	55	78	56	79	56	96	62	79	56	95	69	104	73	107	67	98	74	90	74		
19...	81	50	75	50	94	66	99	69	82	54	87	54	82	55	92	67	73	56	89	66	97	74	105	73	96	75	93	76		
20...	78	47	74	53	95	64	91	67	77	56	75	56	78	55	83	63	74	57	80	63	90	75	86	67	96	76	93	78		
21...	83	46	77	49	95	62	89	67	84	56	80	56	76	56	85	63	78	54	91	61	93	73	92	72	97	75	95	80		
22...	84	46	85	48	92	66	83	69	79	55	73	56	82	58	85	66	76	59	91	63	94	73	92	70	93	75	90	78		
23...	84	45	78	49	91	69	89	65	79	55	83	55	78	58	86	65	76	58	91	61	93	65	94	65	93	74	92	76		
24...	81	48	77	48	90	68	91	61	83	49	86	52	80	55	87	57	78	55	95	63	89	65	98	68	93	72	85	77		
25...	83	46	75	49	93	60	93	58	84	47	82	53	82	55	89	57	76	56	95	61	91	71	96	68	90	75	86	74		
26...	79	45	74	44	93	62	90	65	82	51	82	55	81	54	88	60	75	59	90	62	91	72	96	73	88	76	87	76		
27...	80	46	78	46	92	65	91	62	84	50	88	54	89	54	88	61	78	56	94	59	92	71	96	69	81	73	83	73		
28...	72	48	70	40	84	72	89	65	77	51	79	52	76	53	82	60	76	59	83	59	92	71	96	69	87	75	84	77		
29...	67	48	75	46	83	65	83	67	66	56	66	54	61	52	78	63	67	56	74	67	88	74	89	71	88	74	86	80		
30...	69	54	67	46	86	66	86	67	76	58	76	56	70	55	82	66	68	56	81	58	92	68	92	68	89	75	92	75		
31...	73	44	68	46	91	60	91	63	82	49	84	51	78	52	85	62	76	54	90	59	95	70	96	68	90	74	88	78		
Mns	79.5	46.9	76.2	47.8	92.4	65.5	92.6	65.5	81.9	53.7	83.6	54.7	78.9	55.4	89.3	63.1	76.9	56.8	92.1	63.0	93.8	72.1	97.9 <sup>b</sup>	70.6 <sup>b</sup>	91.6	74.6	88.4	77.0		

Date.	Texas.																											
	Del Rio.		El Paso.		Fort McIntosh.		Fort Stockton.		Fort Worth.		Galveston.		Hallettsville.		Houston.		Lufkin.		Palestine.		Plainview.		San Antonio.		Seymour.		Taylor.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	97	70	93	70	102	78	94	65	92	78	81	75	91	74	93	74	93	72	84	76	92	64	94	73	103	70	92	73
2...	95	70	94	71	102	80	93	64	98	76	84	79	94	74	93	74	97	72	96	74	93	65	96	74	102	68	95	72
3...	95	75	91	72	102	79	93	65	100	78	89	80	95	74	97	75	97	75	98	75	93	65	96	75	100	77	96	73
4...	97	74	91	73	103	79	92	64	104	79	89	80	95	74	98	73	97	72	96	75	94	68	96	74	102	79	98	73
5...	98	76	94	73	104	79	94	64	102	82	89	80	95	74	99	74	99	72	97	76	96	66	97	74	103	77	97	74
6...	99	75	95	73	104	79	96	65	100	80	88	81	95	74	98	75	96	73	96	76	96	69	97	73	104	78	98	73
7...	98	76	94	72	103	79	94	65	96	73	85	71	95	73	94	74	93	72	94	72	96	67	97	73	106	87	97	73
8...	96	75	92	70	101	79	96	66	94	72	83	74	90	73	88	75	92	73	82	71	89	66	92	71	94	75	86	72
9...	92	74	88	67	98	79	89	61	89	74	86	80	89	75	93	74	93	74	90	74	80	66	91	71	85	71	87	72
10...	95	71	89	72	99	75	88	66	94	75	86	78	94	75	95	75	95	73	93	73	88	64	90	72	92	76	95	74
11...	97	73	90	72	97	79	90	65	94	76	84	76	94	76	94	75	92	72	91	72	92	63	94	74	93	72	94	74
12...	96	75	95	70	100	77	95	76	95	76	85	72	94	75	92	75	93	72	90	71	93	64	93	74	97	76	94	74
13...	98	78	90	68	102	77	90	71	80	81	94	77	97	77	97	74	96	72	86	72	88	68	96	75	87	75	95	74
14...	97	76	85	69	101	79	94	76	88	82	94	75	96	75	96	75	98	73	94	75	89	66	96	76	92	70	96	75
15...	98	76	92	67	102	78	98	75	88	81	96	74	98	75	97	72	94	74	92	69	96	75	95	74	96	74	96	74
16...	99	70	95	66	103	78	102	76	89	79	98	73	101	72	102													



Climatological Data for August, 1909.  
DISTRICT No. 9, COLORADO VALLEY.

FREDERICK H. BRANDENBURG, District Editor.

TEMPERATURE.

The mean temperatures were generally above the normal, except in Arizona, where the excessive cloudiness prevented the occurrence of the usual high day temperatures. The night temperatures were practically normal. There was unusually little change from day to day, and no strongly defined hot or cool periods. The mean temperature of the 145 stations reporting was 74.0°; the highest local mean was 94.0°, at Fort Mohave, Ariz., and the lowest, 48.4°, at Corona, Colo. The extremes were 118°, at Mohawk Summit, Ariz., and 25°, at Daniel, Wyo. By subdivisions the means and departures were: western Wyoming, 62.9°, departure, +3.8°; western Colorado, 64.6°, +0.4°; southeastern Utah, 70.4°, +0.8°; western New Mexico, 71.7°, normal; Arizona, 80.5°, -1.1°.

PRECIPITATION.

For the district, as a whole, the month was the wettest summer month since the beginning of the records; and was even more remarkable for the abnormal distribution of the rainfall than for its intensity. In the mountains showers occurred daily, individual stations reporting as many as 27 days with measurable rainfall, but the daily amounts were seldom excessive. In the desert, on the other hand, showers were less frequent, but their intensity was almost unprecedented. At Yuma, Ariz., the twenty-four-hour rainfall on the 15-16th was 0.91 inch greater than the annual normal; at The Needles, Cal., the monthly rain was more than twice the yearly mean; and at several other points more rain fell in the month than normally

falls in a year. The great area covered by these downpours was as remarkable as their intensity; on the 30th-31st more than 2 inches of rain fell at nearly all the stations in the lower Colorado Valley and on the eastern slope of the Wasatch Mountains, a belt over 500 miles in length. In Utah this storm is said to have been the heaviest either of record or tradition.

As a consequence of these excessive rains, the usually dry ravines were swollen to torrents, which, in Utah especially, did great damage. The section director states: "Even the regions reporting the least rainfall report much damage by floods, and the counties receiving the heaviest rains had their roads, fields, irrigation systems, and, in places, their farm buildings devastated, entailing an enormous loss." In Arizona the rains, although locally destructive were generally beneficial by sustaining and insuring the continuance of the water supply.

As is usually the case in rainy months, there was an excess of cloudiness and humidity, and a deficiency of sunshine and wind movement, especially at the higher levels. There have been very few summer months with so few clear days.

The average precipitation for the entire district, the mean of 181 stations, is 3.68 inches. By watersheds the means are: Green, 2.50 inches; Grand, 2.93 inches; San Juan, 4.90 inches; Little Colorado, 4.48 inches; Gila, 3.31 inches; lower Colorado and its minor tributaries, 5.55 inches. The departures from the normal are: Green, +1.07 inches; Grand, +0.80 inch; San Juan, +2.70 inches; Little Colorado, +1.78 inches; Gila, +1.22 inches; lower Colorado, +3.93 inches.

TABLE 1.—Climatological data for August, 1909. District No. 9, Colorado Valley.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
Wyoming.																					
Daniel	Uinta	6,740	10	58.6	+ 3.8	83	14†	25	28	51	1.17	+ 0.03	0.57	0.0	3	8	21	2	nw.	J. M. Van Dervort.	
Dixon	Carbon	6,377																		Carey O. Morgan.	
Eden	Sweetwater	6,400	3	64.6		92	15	34	25	50	0.79		0.60	0.0	8	16	9	6	w.	Eden Valley L'd & Ir. Co.	
Fontenelle	Uinta	6,083	4	69.5		98	14	39	3	51	0.70		0.43	0.0	6	12	10	9	w.	C. W. Holden.	
Green River	Sweetwater	7,630	3																	Geo. H. Maxom.	
Kendall	Fremont	7,630	3																	Art. Doyle.	
Pinedale	do.	7,167	3																	Forest Service.	
Willow Creek Cabin <sup>b</sup>	do.	7,300	1	59.0		75	14†	28	28	39	3.51		1.52	0.0	11	12	8	9	nw.	John L. Allen.	
Colorado.																					
Ashcroft	Pitkin	9,483	8	55.7		79	9	36	3†	40	4.88		1.85	0.0	24					Dan McArthur.	
Breckenridge	Summit	9,536	19	53.8	+ 0.4	77	15	31	15	46	5.81	+ 3.61	1.75	0.0	20	1	14	16	se.	Mrs. J. G. Thompson.	
Cascade	San Juan	8,900	3										0.08	0.0	27	4	5	22		San Juan P. & W. Co.	
Chromo	Archuleta	7,500	3	62.5		88	7	41	5	44	4.86		0.80	0.0	22	4	20	7	sw.	Lawrence Nolan.	
Cochetopa	Saguache	9,088	16	67.8	- 0.1	89	14	50	3	37	2.12	+ 0.77	0.66	0.0	22	0	19	12	w.	Bessie McDonough.	
Collbran	Mesa	6,000	16	67.8	- 0.1	89	14	50	3	37	2.12	+ 0.77	0.28	0.0	17	12	16	3	sw.	A. A. Wood.	
Columbine	Routt	8,766																		Jas. H. Caron.	
Columbine Ranch	Delta	6,925																		Geo. W. Wade.	
Corona	Grand	11,660	2	48.4		64	15	34	29	24	5.25		1.10	0.0	18				w.	U. S. Weather Bureau.	
Crawford (near)	Montrose	6,600		67.6		89	14	52	2†	30	1.63		0.30	0.0	20	10	21	0		C. W. Roe.	
Crested Butte	Gunnison	8,867											0.60	0.0	18	5	2	24	w.	Charles L. Ross.	
De Beque	Mesa	4,935																		C. M. Paine.	
Delta	Delta	4,965	18	74.0	+ 1.8	99	14	51	3	42	1.52	+ 0.14	0.33	0.0	13	15	16	0		E. M. Getts.	
Dillon	Summit	8,800											0.47	0.0	18	8	23	0	n.	Harry T. Hamilton.	
Dolores	Dolores	6,500		68.6		90	1	32	3†	34	4.81		0.56	0.0	19	4	16	11	sw.	Geo. R. Simmons, jr.	
Dunkley	Routt	7,400	3	67.4		92	14	52	20	31	1.30		0.30	0.0	7	7	14	5		Geo. W. Dunkley.	
Durango	La Plata	6,534	16	66.8	+ 0.5	86	22	48	5	35	3.54	+ 1.75	0.98	0.0	15	2	25	4	nw.	U. S. Weather Bureau.	
Eagle	Eagle	6,598	4	64.5		92	17	40	2†	44	2.71		0.72	0.0	8	13	16	2	w.	J. M. Witterman.	
Eureka	San Juan	10,000	2										0.90	0.0	19					San Juan P. & W. Co.	
Fruita	Mesa	4,510	10	73.8	+ 0.5	100	14	51	3	42	1.39	+ 0.22	0.40	0.0	9	9	16	6		J. B. Willsa.	
Gladstone	San Juan	10,400	3										1.05	0.0	26	0	29	2	ne.	San Juan W. & P. Co.	
Glenwood Springs (near)	Garfield	5,823	11										0.22	0.0	12	10	15	6	e.	E. A. O'Neil.	
Grand Junction	Mesa	4,608	18	76.1	+ 0.1	99	14	61	5	31	0.86	- 0.24	1.00	0.0	3	21	4	6		U. S. Weather Bureau.	
Grand Lake	Grand	8,153											0.51	0.0	3	25	3	3		Mrs. Belle Kauffman.	
Grand Valley	Garfield	5,089	17	72.5	+ 1.1	98	14†	48	5	47	2.00	+ 1.01	0.51	0.0	19	25	3	3		David Evans.	
Gunnison	Gunnison	7,670	16	63.4	+ 3.9	87	26	42	1†	40	1.88	+ 0.58	0.34	0.0	13	4	12	15	sw.	Clarence Adams.	
Hayden	Routt	6,337		66.2		92	15	40	1†	49	3.62		0.68	0.0	11	17	6	8	ne.	C. W. Harkness.	
Hesperus	La Plata	8,870	11										0.54	+ 3.54	0.0	21	9	13	9		John S. Spear.
Horseshoe	Montrose	8,700																		Lawrence J. Finch.	
Ignacio	La Plata	6,425											1.30	0.0	16	3	18	10	sw.	Elizabeth Schalles.	
Ironton	Ouray	10,000																		P. H. Foley.	
Kremmling (near)	Grand	7,337	1	62.2		88	1†	40	26	46	4.00		0.85	0.0	16	9	12	10		H. A. Howe.	
Lake City	Hinsdale	8,686	4	59.9		81	15	41	7	34	2.70		0.57	0.0	19	0	16	15	a.	W. H. Ogle.	
Lay	Routt	6,190	15	65.7	- 0.1	93	14†	38	4†	50	1.71	+ 0.86	0.44	0.0	12	12	1	18		A. G. Wallihan.	
Lujane	Montrose	6,620	3	70.4		92	3	51	8	35	1.99		0.35	0.0	13	9	8	14	sw.	T. T. Richards.	
Mancos	Montezuma	6,960	10	64.6		84	5	44	14	38	6.15	+ 3.89	1.15	0.0	19	2	25	4	se.	B. M. Krumpalitzky.	
Marble	Gunnison	7,951	6	61.2		82	5†	38	3	41	5.13		0.80	0.0	18	9	15	7	ne.	Homer Harrington.	
Marshall Pass	Saguache	10,846	6										0.50	0.0	14	15	9	7	w.	William D. Lillard.	
Meeker	Rio Blanco	6,182	17	63.9	- 0.3	88	14	39	3	42	2.91	+ 1.50	0.65	0.0	11	8	14	9		T. Baker.	
Montrose (near)	Montrose	5,811	20	66.6	- 0.9	90	14	47	3†	39	2.30	+ 0.98	0.75	0.0	18	6	24	1		R. Butterfield.	
Nat.	Pitkin	7,953	3										0.86	0.0	12	8	18	5	w.	Arthur Hantorn.	
Pagoda	Routt	6,500	18	64.6	+ 1.1	90	14†	38	3	46	2.57	+ 1.07	0.85	0.0	7	19	9	3		Shaw Brothers.	
Pagosa Springs	Archuleta	7,108	2	64.0		85	17	44	5	37	4.69		0.81	0.0	19	2	18	11		E. T. Walker.	
Paonia	Delta	5,694	8	73.0		96	14	54	3†	39	1.92	+ 0.77	0.98	0.0	9	6	25	0	sw.	J. M. Underwood.	
Parshall	Grand												0.60	0.0	9					F. A. Field.	
Pitkin	Gunnison	9,500											0.65	0.0	12	7	23	1		Mrs. Maggie Cammann.	
Rangely	Rio Blanco	5,050	10	70.4	+ 5.8	97	14†	43	4	48	2.31	+ 0.92	0.93	0.0	9	7	13	11	w.	Mrs. C. P. Hill.	
Redcliff	Eagle	8,695	14										0.90	0.0	9	14	6	11		Dorothea Greiner.	
Rico	Dolores	8,824	8																	Clinton B. Smith.	
River Portal	Montrose	6,570	3	68.3		93	13	49	2†	39	2.16		0.53	0.0	12	1	14	16		J. Dill.	
Sapinero	Gunnison	8,125	9	69.9		82	14	40	5†	37	2.06		0.32	0.0	19	10	16	5	w.	W. F. Irving.	
Silt	Garfield	5,441	13	67.2	- 2.4	96	14†	43	27†	50	1.00	- 0.22	0.22	0.0	11	10	17	4	w.	W. S. Park.	
Silverton (1)	San Juan	9,285	5	56.3		78	13	38	5	36	4.52		0.84	0.0	19	0	17	14	nw.	V. E. Kerr.	
Silverton (2)	do.	9,400	3	55.0		79	15	38	5†	33	4.51		0.52	0.0	20	0	11	20	ne.	San Juan P. & W. Co.	
Spruce Lodge	Grand	9,600	1										0.78	0.0	18					H. J. Wills.	
Steamboat Springs	Routt	6,683											0.52	0.0	8	26	2	3		M. Elliot Houston.	
Tacoma	La Plata	7,300	3	65.4		85	22	49	5	30	4.26		0.85	0.0	22	3	12	16		San Juan P. & W. Co.	
Terminal Dam	do.	8,300	3										0.75	0.0	27	3	25	3	s.	Do.	
Uncompahgre Plateau	Montrose	8,400																			
Whitepine	Gunnison	9,500	8	53.3		71	5†	32	20†	34	5.00		2.00	0.0	10	3	24	4	s.	Martin Esser.	
Yampa	Routt	8,000	1										0.62	0.0	14	2	19	10	se.	C. E. Macy.	
Utah.																				Percy A. Hughes.	
Aneth	San Juan	4,800	8																		
Baker	do.	do																			



TABLE 1.—Climatological data for August, 1909. District No. 9—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Utah—Cont'd.																				
Teasdale <sup>1</sup> .....	Wayne.....	7,000	1	65.7	.....	88	3†	47	1 38	3.07	.....	1.60	0.0	9	.....	.....	.....	.....	Josiah Shurtz.	
Theodore.....	Wasatch.....	5,507	4	68.0	.....	91	13	41	3 46	2.38	.....	0.75	0.0	15	6	19	6	.....	L. Claire Winslow.	
Tropic.....	Garfield.....	7,000	12	67.5	+ 1.7	92	14	41	4 46	5.39	+ 3.92	1.92	0.0	16	3	12	16	sw.	E. P. Bolton.	
Vernal.....	Uinta.....	5,380	14	70.6	+ 0.8	93	15	51	1† 39	1.97	+ 1.34	1.00	0.0	9	22	7	2	sw.	Joab Collier.	
Wellington.....	Carbon.....	5,540	10	66.0	- 2.8	88	28†	41	3 45	.....	.....	.....	.....	.....	.....	.....	.....	.....	Melville Branch.	
New Mexico.																				
Blackrock.....	McKinley.....	5,500	13	69.9	.....	90	22	52	15† 33	2.83	.....	0.63	0.0	16	0	31	0	w.	Wm. J. Oliver.	
Bloomfield.....	San Juan.....	5,500	13	73.6	+ 0.9	98	14	54	7 38	4.44	+ 2.97	1.60	0.0	15	2	25	4	se.	Fred Le Clerc.	
Cambray.....	Luna.....	4,215	11	.....	.....	.....	.....	.....	.....	2.60	+ 1.11	1.05	0.0	3	0	31	0	.....	Agent, Southern Pac. Ry.	
Cliff.....	Grant.....	4,470	11	78.6	+ 1.8	107	11†	51	28 49	2.32	- 0.27	0.94	0.0	8	.....	.....	.....	.....	T. J. Clark, sr.	
Columbus.....	Luna.....	4,054	.....	.....	.....	.....	.....	.....	.....	2.57	.....	0.85	0.0	9	9	19	3	sw.	Agent, E. P. & S. W. R. R.	
Deming.....	do.....	4,333	33	74.4	.....	98	1†	55	25 38	1.58	- 0.38	0.40	0.0	8	12	16	3	e.	Agent, Southern Pac. Ry.	
Dulce.....	Rio Arriba.....	6,767	3	67.2	.....	90	15†	45	5 40	4.55	.....	0.50	0.0	16	15	16	0	w.	W. A. Fuller.	
Fort Bayard.....	Grant.....	6,152	35	70.9	- 0.2	89	8†	53	17 33	3.65	+ 0.72	0.95	0.0	16	24	6	1	w.	U. S. A. Gen'l Hospital.	
Fort Wingate.....	McKinley.....	6,997	46	65.5	- 3.7	85	13	41	3 38	5.40	+ 3.00	1.30	0.0	18	2	12	17	sw.	Medical Corps, U. S. A.	
Frisco.....	Socorro.....	5,800	3	71.5	.....	91	1†	54	18† 36	4.27	.....	1.70	0.0	10	1	29	1	.....	John R. Milligan.	
Fruitland.....	San Juan.....	4,800	17	74.0	+ 1.1	98	1†	49	17 44	2.25	+ 1.61	1.05	0.0	10	8	20	3	se.	Cyril Jas. Collier.	
Gage.....	Luna.....	4,486	5	75.7	.....	97	1	52	18 39	1.97	.....	1.20	0.0	5	0	24	7	e.	Agent, Southern Pac. Ry.	
Hachita.....	Grant.....	4,504	.....	.....	.....	.....	.....	.....	.....	4.77	.....	1.88	0.0	12	10	14	7	se.	Agent E. P. & S. W. R. R.	
Hermance.....	Luna.....	4,451	.....	.....	.....	.....	.....	.....	.....	2.72	.....	0.51	0.0	10	0	22	0	.....	Do.	
Lordsburg.....	Grant.....	4,245	10	78.4	+ 2.2	98	2	59	25 36	2.36	+ 0.67	0.65	0.0	8	2	14	15	.....	Agent Southern Pac. Ry.	
Luna (near).....	Socorro.....	7,300	5	63.3	.....	82	26	45	20† 33	3.49	.....	0.86	0.0	12	1	30	0	w.	C. B. Martin.	
Manuelito.....	McKinley.....	6,252	5	70.8	.....	93	1	48	2 44	7.55	.....	3.00	0.0	12	0	9	22	w.	W. A. L. Tarr.	
Mimbres.....	Grant.....	5,007	3	.....	.....	.....	.....	.....	.....	3.33	.....	0.48	0.0	14	14	16	1	se.	Charles Dennis.	
Pratt.....	do.....	4,415	.....	.....	.....	.....	.....	.....	.....	4.73	.....	1.00	0.0	10	20	0	11	e.	Agent, E. P. & S. W. R. R.	
Redrock.....	do.....	4,150	5	.....	.....	.....	.....	.....	.....	3.97	.....	1.25	0.0	9	5	24	2	.....	Robt. H. Woods.	
Rodeo.....	do.....	4,118	1	.....	.....	.....	.....	.....	.....	2.59	.....	0.59	0.0	19	22	9	0	.....	Agent, E. P. & S. W. R. R.	
Rosa.....	Rio Arriba.....	6,000	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	B. A. Candelario.	
Arizona.																				
Allaire's Ranch.....	Cochise.....	4,184	13	.....	.....	106	22†	72	5†	32	6.41	+ 3.40	2.70	0.0	17	8	6	17	se.	Thos. Allaire.
Arizona Canal Dam.....	Maricopa.....	1,372	.....	87.9	- 0.6	106	22†	72	5†	32	1.12	- 0.37	0.43	0.0	6	4	12	15	sw.	U. S. Reclam't'n Service.
Aztec.....	Yuma.....	492	9	91.6	- 3.2	112	11†	71	31 37	1.95	+ 1.43	1.18	0.0	7	7	17	7	s.	Agent, Southern Pac. Ry.	
Benson.....	Cochise.....	3,523	26	78.4	- 3.2	98	27	62	15† 34	3.71	+ 1.44	0.80	0.0	9	2	11	18	e.	Do.	
Bisbee.....	do.....	5,500	19	69.8	- 2.8	85	22	57	18 26	9.59	+ 4.73	1.72	0.0	22	9	16	6	e.	Rev. J. G. Pritchard.	
Bonita.....	Graham.....	4,916	30	.....	.....	.....	.....	.....	.....	2.64	- 0.17	0.60	0.0	9	3	18	10	w.	A. Johnson & Co.	
Bowie.....	Cochise.....	3,756	9	79.4	+ 0.9	99	2	62	18† 32	4.76	+ 0.29	1.07	0.0	12	5	11	15	.....	Agent, Southern Pac. Ry.	
Buckeye.....	Maricopa.....	9,980	17	89.0	+ 1.7	110	11	71	10 36	1.09	+ 0.24	0.37	0.0	8	8	18	5	w.	H. E. Kell.	
Casa Grande.....	Pinal.....	1,396	28	.....	.....	107	13	70	15† 35	1.93	.....	1.20	0.0	7	6	17	8	w.	Agent, Southern Pac. Ry.	
Casa Grande Ruins.....	do.....	1,422	1	87.8	.....	105	23	66	16 38	2.08	.....	1.11	0.0	6	9	20	2	.....	F. Pinkley.	
Cave Creek.....	Maricopa.....	1,520	2	84.4	.....	105	23	66	16 38	2.08	.....	1.11	0.0	6	9	20	2	.....	E. H. Howard.	
Chin Lee.....	Apache.....	6,090	1	72.8	.....	90	14†	56	26 32	3.67	.....	0.69	0.0	17	9	12	10	sw.	Fr. L. Osterman, O. F. M.	
Chilsons Mill.....	Graham.....	8,000	4	63.7	.....	79	11	52	17 24	9.40	.....	2.30	0.0	17	4	11	16	.....	H. R. Chlarson.	
Clifton.....	do.....	3,584	17	83.0	.....	103	22	66	9 30	2.37	- 0.18	1.00	0.0	10	13	17	1	.....	W. B. Cramer.	
Cline.....	Gila.....	2,300	8	82.2	.....	100	20	60	12 39	3.61	+ 0.10	1.10	0.0	10	0	21	10	sw.	W. M. Clanton.	
Cochise.....	Cochise.....	4,219	11	77.9	+ 1.8	93	14	62	17 30	2.87	+ 0.81	1.37	0.0	8	2	18	11	.....	Agent Southern Pac. Ry.	
Columbia.....	Yavapai.....	1,900	9	86.8	.....	105	22	70	7 25	1.49	.....	0.65	0.0	9	5	13	13	se.	M. J. Nolan.	
Congress.....	do.....	3,688	13	80.1	- 3.3	97	22	64	19† 27	5.59	+ 3.41	1.28	0.0	10	7	12	2	sw.	Assayer, Congress Mine.	
Dos Cabezas.....	Cochise.....	5,250	1	74.3	.....	94	21	54	24† 36	2.31	.....	0.62	0.0	6	4	20	7	w.	N. Erickson.	
Douglas.....	do.....	3,930	6	78.4	.....	99	22	57	26 37	4.03	.....	1.21	0.0	18	6	23	2	sw.	Dr. F. T. Wright.	
Dudleyville.....	Pinal.....	2,204	18	80.6	- 1.6	98	11	65	18 28	4.25	+ 1.67	1.13	0.0	20	1	22	8	s.	G. F. Cook.	
Flagstaff (1).....	Cocconino.....	6,907	17	62.8	0.0	82	22	47	27 33	6.73	+ 3.43	1.22	0.0	21	3	13	15	n.	U. S. Weather Bureau.	
Flagstaff (2).....	do.....	7,452	4	60.2	.....	80	1	44	28 33	9.73	.....	1.13	0.0	27	0	26	5	.....	C. C. Moers.	
Flagstaff (3).....	do.....	7,500	1	61.0	.....	80	1†	44	2† 34	5.83	.....	1.39	0.0	17	2	18	11	sw.	U. S. Forest Service.	
Florence.....	Pinal.....	1,504	9	88.9	.....	109	12†	71	5† 38	3.61	+ 1.59	1.20	0.0	10	9	13	9	sw.	Agent, P. & E. R. R.	
Fort Apache.....	Navajo.....	5,200	30	72.0	+ 0.5	98	7	50	4 38	2.98	- 0.43	0.49	0.0	16	14	16	1	sw.	Post Surgeon.	
Fort Huachuca.....	Cochise.....	5,100	23	76.6	+ 2.8	97	22	59	18 25	3.32	+ 1.14	1.32	0.0	17	12	9	10	se.	Do.	
Fort Mohave.....	Mohave.....	604	20	94.0	+ 1.3	115	8	74	16 36	4.42	+ 3.73	2.02	0.0	5	25	0	6	.....	A. F. Duclos.	
Gilabend.....	Maricopa.....	737	18	88.8	- 2.9	113	23	55	12 44	2.87	+ 1.78	1.25	0.0	5	15	9	7	ne.	Agent, Southern Pac. Ry.	
Globe.....	Gila.....	3,525	8	79.4	.....	98	21†	64	5† 33	2.01	.....	0.33	0.0	14	0	28	3	sw.	Dr. B. G. Fox.	
Grand Canyon (1).....	Cocconino.....	6,866	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, Santa Fe R. R.	
Grand Canyon (2).....	do.....	3,676	2	77.8	.....	100	14	62	9 33	4.76	.....	1.46	0.0	12	5	5	21	sw.	C. C. Spaulding.	
Greer.....	Apache.....	9,200	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. M. Butler.	
Holbrook.....	Navajo.....	5,069	18	74.8	0.0	96	14	56	29† 40	2.70	+ 1.22	0.59	0.0	12	19	11	1	.....	Thorwald Larson.	
Intake.....	Gila.....	2,230	4	.....	.....	.....	.....	.....	.....	1.35	.....	0.61	0.0	6	3	15	13	sw.	A. H. Neal.	
Jerome.....	Yavapai.....	4,743	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. L. A. Hawkins.	
Keams Canyon.....	Navajo.....	.....	4	69.2	.....	87	14	54	19 29	4.14	.....	0.65	0.0	16	1	30	0	w.	L. R. Ballard.	
Kingman.....	Mohave																			

TABLE 1.—Climatological data for August, 1909. District No. 9—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Arizona—Cont'd.																				
Thatcher.....	Graham.....	2,800		80.8		103	22	60	1†	40	4.62		1.01	0.0	13	5	12	14	se.	Prof. J. H. Larson.
Tombstone.....	Cochise.....	4,550	14	74.9	- 0.8	94	22	60	17	28	5.83	+ 1.97	1.05	0.0	16	7	22	2	.....	F. N. Walcott.
Tuba.....	Coconino.....	4,500	9	74.3		97	14	56	2	37	1.66		0.40	0.0	10	1	17	13	ne.	G. H. Kraus.
Tucson (1).....	Pima.....	2,390	29	82.8	- 2.5	102	26	62	16	35	1.36	- 1.07	0.61	0.0	9	1	30	0	nw.	University of Arizona.
Tucson (2).....	do.....	2,380	1	83.3		102	1	62	27	38	3.70		1.26	0.0	6	3	24	4	sw.	H. G. Brown.
Upper San Pedro.....	Cochise.....	5,000																		B. T. Stuart.
Vail.....	Pima.....	3,421	11	80.2	- 1.4	98	26	60	16	36	2.62	+ 1.80	0.80	0.0	6	1	23	7	.....	Agent, Southern Pac. Ry.
Walnut Grove.....	Yavapai.....	3,649	19								5.15	+ 3.02	1.55	0.0	12	4	17	10	.....	J. O. Carter.
Wickenburg.....	Maricopa.....	2,072	2	87.3	+ 2.5	108	4	65	26	33	2.36	+ 0.41	0.62	0.0	13	8	14	9	sw.	Agent, P. & P. R. R.
Wilcox.....	Cochise.....	4,164	29	76.6	- 2.0	95	22	59	26	34	4.16	+ 1.58	1.32	0.0	12	6	7	18	s.	Agent, Southern Pac. Ry.
Williams.....	Coconino.....	6,750	10	68.5	+ 0.8	89	13	48	3†	34	6.46	+ 3.40	1.28	0.0	22	3	12	16	ne.	H. Victor.
Winslow.....	Navajo.....	4,853	1	75.6		98	13	55	22	40	2.79		0.78	0.0	14	2	16	13	.....	L. C. Henning.
Yarnell.....	Yavapai.....	4,700	11								5.40	+ 2.44	1.90	0.0	10	3	6	22	s.	E. L. Bartholomew.
Yuma (1).....	Yuma.....	141	30	88.4	- 1.7	110	11	71	16	35	6.25	+ 5.90	4.01	0.0	7	22	6	3	s.	U. S. Weather Bureau.
Yuma (2).....	do.....	150	2	87.4		110	11	61	2	40	6.37		4.12	0.0	8	6	21	4	sw.	E. L. Crane.
Nevada.																				
Caliente.....	Lincoln.....		2																	
Las Vegas.....	Clark.....	2,033	2	84.3		108	12	58	24	46	1.78		0.74	0.0	3	6	19	6	nw.	Agent, Salt Lake Route.
Logan.....	do.....	1,700	3	85.4		108	3	60	3	48	1.86		0.62	0.0	7	8	10	13	s.	Roy M. Filcher.

\* Precipitation included in that of the next measurement.

\* Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.

† Also on other dates.

‡ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

|| Estimated by observer.

|| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

\*, †, ‡, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.



TABLE 2.—Daily precipitation for August, 1909. District No. 9, Colorado Valley.

Stations.	River basins.	Day of month.																															Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Wyoming.																																			
Daniel	Green	T.	T.		T.			.40		T.	T.			T.		T.								T.	.20							T.	.27	1.17	
Dixon	do.																																		
Eden	do.	.03			.01	T.				.01	.04		T.				.05			.03	T.		.02										.60	0.79	
Fontenelle	do.																																		
Green River	do.		T.			T.				.04		T.	.43				.13	T.			.03	.04	.03										T.	0.73	
Kendall	do.																																		
Pinedale	do.																																		
Willow Creek Cabin	do.		T.			.20	.10	.35		.05		.03	T.	.27	T.	T.	.24		1.52	T.			.15	.25									.35	3.51	
Colorado.																																			
Ashcroft	Grand	.08	.06			.01	.03	.15	.07	.06	1.85	.61	.06	.01	T.	.17	.06	.06	.07	.36	.02			.15	.10	.02		T.	.11	.20	.29	.28	4.88		
Breckenridge	do.		.36	.20	.04	T.	.07	.12	.09	.15	.50	.10	.05				.12	.78	1.75	.03	.06			.10	.33								.22	4.2	5.81
Cascade	San Juan	.16	.07	.04	.04		.07	.40	.17	.01	.05	.10	.24	.07	.07	.72	.24		.23	.40	.17	.07		.98	.55		.27	.37	.32	.67	.45	.14	7.07		
Chromo	do.	.04		T.	.50	T.	.43	T.	.04	.04	.03		.04	.38	.09	.80	.18	.15	.12	.10	.04	.36			.35	.04	.36		.35	.30	.12		4.86		
Cochetopa	Gunnison	.11	.16	.09			.04	.09	T.	.02	.14		.01	.04	.01	.03	.17	.25	.58	.11		.07	.07	.06	T.	.06		T.	.15	.66	.30	3.22			
Collbran	Grand	.02	.08			.15	.26	.07	.01	.12							.27	.18	.28	.01	.10	T.	.10	.04									.24	2.12	
Columbine	Yampa																																		
Columbine Ranch	Gunnison																																		
Corona	Grand		.14		.62		.14	.06	.42	.40		.64	.12	.24	.22			.33	.50	1.10	.08				.04	.04			.10	.06	T.	T.	5.25		
Crawford	Gunnison	.24	.11			.07	.07	.01	.02	.04	.06					.12	.10	.02	.07	.05	.04			.05				.30	.02	.08	.07	.09	1.63		
Crested Butte	do.		.20			.10		.12		.60		.20			.10		.07	.05	.05	.04	.06	.05	.06	T.	.20	.10		.05	T.	T.	.20	.08	2.33		
De Beque	Grand																																		
Delta	Gunnison	.03	.05			.27	.03		.09		.03		.17				.33		T.	T.				.13	.07					.10	.15	.07	1.52		
Dillon	Grand	.20		.25	T.	T.	.27	.04	.35	.05	.04	.47	.25	.06	.05	T.	T.	.07	.02	.25	.04	T.		T.	T.	T.	.02	.40	T.	T.	.02	T.	2.85		
Dolores	Dolores			.32		.15		.24		.44	.05	.22		.37	.56	.11	.29	.04	.08	.11				.34	.52				.20	.31	.34	.12	4.81		
Dunkley	Yampa		.20							.10		.20					.20	.10	.20														.30	1.30	
Durango	San Juan	.02	T.	T.	.07	.07	.09	.02				T.		T.		.56	.01		.56		.04			T.	T.	T.	.05	.26		.78	.38	.58	.05	3.54	
Eagle	Grand		.28			.32			.72	.17	T.					.42	.65		.04				T.	.11	T.	T.							.21		
Eureka	San Juan			.70		.34		.53	.14	.90		.29		.10		.13		.11				.19	.70	.14	.13		.30	.19	.90	.15	.19	.11	6.24		
Fruita	Grand	.10				.06	.10	.28	T.		.08	T.				.25	.02		T.	T.				.10										.40	1.39
Gladstone	San Juan	.08		1.09		.05	.35	.64	.38	.09	.02	.08		.40	.32		.05	.05	.05	.08	.02	.28		.15	.55	.02	.07	.24	.28	.26	.25	.11	5.96		
Glenwood Springs	Grand																																		
Grand Junction	do.	.03				.11	.02	.01		T.	.04	.01			T.	.22	T.	.09	T.			.01		.18	.01								.13	0.86	
Grand Lake	do.			T.	T.									.85																			.75	T.	2.60
Grand Valley	do.	.11	.01			.07	.01	.07	.03	.15	.22	.02			.12	.05	.06	.18	.09		T.	.12	T.	.09						.51	.02	.07	2.00		
Gunnison	Gunnison	.03	.32	T.					.15	.34	.18		.03			.02	.02	.29						.18							T.	.12	.14	.06	1.88
Hayden	Yampa					.45	T.					.33		.11			.12	.18	.15			.29		.45			.51	T.	.35	T.		.68	3.62		
Hesperus	San Juan	.12	.01	T.	.05	.04	T.		.17	.18	.55	.06	T.	.16	.21	.79	.50	.05	.59	T.	.17			T.	.01		.33	.26	T.	.64	.66	.09	5.64		
Horsely	Gunnison																																		
Ignacio	San Juan	.04		.04	.22		.05	.05		.02			T.	.30		.50		.62		T.				.90	.30		.03		1.30	.75	.50	.05	5.67		
Ironton	Gunnison																																		
Kremmling	Grand		.12			.40	T.	.10	.05	.45	.01	T.	.13	.51			.85	.72					.10	.12	.01				.30	.11		.02	4.90		
Lake City	Gunnison	.04	.06	.50		T.	.14		.18	.06			.25	.07	.12		.04	.05	T.	.04			.16	.04	.18		.10	.08	.10	.04		.02	.01	.57	1.71
Lay	Yampa		.07			.10	.25	.05	.30							.20	.05		T.				.08												
Lujane	Gunnison		.20			.06	.25		.08	T.	.46					.39	.43		.30	T.	.34														
Manitou	San Juan	.15		.49	.58											.58	.27		.02																
Marble	Grand	.56				.22		.14	.35	.25		.20	.35	.80	.14	.16		.55		.21			.18	.23									.27	2.91	
Marshall Pass	Gunnison		.30	.50		.12	.14	.35	.25							.55		.49																	
Meeker	White	.05	T.			.12	.14	.35	.25							.18	.16	.12	.06	.02															
Montrose	Gunnison	.18	T.			.75	.01	.17	T.	.05						.15		.86																	
Nast	Grand		.35			.25	.31	.11	.01		.14	.85				.15		.86																	
Pagoda	Yampa	.35	T.			.05		.02	.69	.22		T.	T.	T.		.32	.30	.76	T.	T.	.04	T.													
Pagosa Springs	San Juan	.09	.16		.61	.07		.05	.02	.69	.22		T.	T.	T.		.32	.30	.76	T.	T.	.04	T.												
Paonia	Gunnison	.20	.05			.09		.09	.98	T.						.32	.03	T.	T.	T.															
Parshall	Grand	.16				.45	.05			.60						.16	.42																		
Pitkin	Gunnison	.20		T.		.30		.30	T.	.65	.25	T.	.21			T.	.23		.20	.10															
Rangely	White	.02				.11			.22	.40						T.	.09	T.		.93	.30														
Redcliffe	Grand				T.	.60	.30																												

TABLE 2.—Daily precipitation for August, 1909. District No. 9—Continued.

Stations.	River basins.	Day of month.																															Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
New Mexico—Cont'd.																																			
Cambray.	Mimbres.												.65	1.05				.27	T.	.26												.90			2.60
Cliff.	Gila.			.94	.34	.17																		.17	T.	.12								.05	2.32
Columbus.	do.	.85	.20					.45	.15				.50	T.				.10						.10						.20	.02			2.57	
Deming.	do.	.15	.25							.25			.10		.10			.40						.05						.28	T.			1.58	
Dulce.	San Juan.	.50		.10				.15		.10	.10					.20	.20				.10	.50		.25	.50	.35	.40			.30	.30			4.55	
Fort Bayard.	Mimbres.	.15	.03	.75				.12	.02	.13	.02	.08	.07	.53	T.	T.	.35						.20	.03				.95	.20	.02				3.65	
Fort Wingate.	Little Colorado.	.10	T.		.20	.20	.50	.20	.10	.20	T.	T.			.50	.10	.20	T.	.30	.20				.20		1.30	.50	.20	T.	.20	.20			5.40	
Frisco.	Gila.		T.				T.	T.	.05	* .03	.27	T.			.33		1.70		.15		.05	.15			.67	.05			T.		.50			4.27	
Fruitland.	San Juan.															.30				.45									*	1.05	.30	.02	2.95		
Gage.	Gila.	T.	T.											1.20	.05	.02		.50															1.97		
Hachita.	do.	.67			.75	.05		.02	.06	.01				.08	.78			1.88	.03										.07	.37			4.77		
Hermanes.	do.		.22	.11	.35			T.	.21				.10			.14	.51	.45															2.72		
Lordsburg.	do.	.46	.65					.25	.08				.40		.12																		2.36		
Luna.	do.	.27	.08	.13	.55	.51			T.	T.		.33	.25	.86	.04			T.			.03	T.	T.	T.	T.			T.	T.	.30	.14		3.49		
Manuelito.	Little Colorado.	.15	.05		.10			.50	.35	.20	.70														.50	.30				.50	.30			7.55	
Mimbres.	Mimbres.	.07	.15		.21			.39			.02	.26			.38			.08					.04	.38	.28				.14	.45	.48			3.33	
Pratt.	Gila.	.53		.50						.35	1.00					.40	.25	.30							.30					.60	.50	T.		4.73	
Redrock.	do.			1.03				.25		.05				.51		.14	.15												.53	.10	.21			3.97	
Rodeo.	do.	.15	.59		.07	.18		.01	.29	.07			.05	.02	.01	.10	.06	.26	.49							.01	T.			.02	.07	.04	.10	2.59	
Rosa.	San Juan.																																		
Arizona.																																			
Allaire Ranch.	Sonora.	.02	1.13					.29	.10		.06		.11	.37	.11	.39	.01	.70						.08	.40	T.				.40	.05	.02		.08	6.41
Arizona Canal Dam.	Salt.						.37			.17					.01	.43															.06			1.12	
Astec.	Gila.				.08	.09								.26		.06															.04	1.18	1.95		
Benson.	San Pedro.	.15	.08					.32	.72		T.	T.		.60		.30		.80																3.71	
Bisbee.	do.	1.72		1.11	1.09	.37	.91	T.	.14	.34	.18	.41	1.61	.30	.03	.30	.03	.02	.80										.20	.05	.07	.11	9.59		
Bonita.	Mimbres.		.57					.45				.03	.02	.45	.60		.10	T.	.22														2.64		
Bowie.	Gila.		.10					1.00	.60		.17				.55	.05	.61	.04	1.07															4.76	
Buckeye.	do.				.20				T.	.09		T.			.08	.10	.04														.10	.37	1.09		
Casa Grande.	do.				.47					.06	.02				.02	1.20															.01	.15	1.93		
Casa Grande Ruins.	do.				.16	1.11				.05					.29	.18		.29																2.08	
Cavecreek.	Verde.																																		
Chin Lee.	San Juan.	.01		.01	T.	.27	.69	.02	.37		.17		.02			.21	.09			.23	.03	.25		.60	T.	T.	.01	T.	.04	.64	.03	T.		3.67	
Chilarsona Mills.	Gila.	.02	1.60	.01	.04	.82	.08				.01				1.35	.04		1.32					.37	.22	.30				.20	.30	.70		9.40		
Clifton.	do.	.22		.01	T.			T.	.54	1.00	T.	.10	.20												.07	T.			.03		.06	.14		2.37	
Cline.	Salt.	.09	.07	.04						.40					1.10			.78												.08	.11	.13	3.61		
Cochise.	Desert.							T.	1.37																						.07			2.87	
Columbia.	Agua Fria.	.15	T.		.06	T.		.05		.05			T.			.65							.16	.10		.03			T.		.05	.38	1.49		
Congress.	Hassayampa.	.01	T.		1.28					.17	T.			T.		.60	1.00	T.		.76											.20	.20	.75	5.59	
Dos Cabezas.	Desert.							.62	.42				.50	T.	T.	.24	.21													.32			2.31		
Douglas.	Sonora.	T.	T.	.03	T.	.05	.03	.18	.62	.03	T.	.53	1.21	.51	.21	.02	.05								.25	.02	T.		.18	.02	.04	.05	T.	4.03	
Dudleyville.	Gila.		.08	.01		.12	.02	.01	T.	.20	.06	.60	T.	.46	.48	.08	.09	1.04	.02	T.										.05	.02	.10	.05	4.25	
Flagstaff (1).	Little Colorado.	.25		.61	T.	.40	.24	.60	.14	.22	T.	.84	.20		1.10	.29	.04	.05	.01	.22	.33		.01	T.	.07	T.		T.	T.	.26	.50	.15	6.73		
Flagstaff (2).	do.	.14	.04	.38	T.	.51	.33	.85	.22	.14	.32	.02	.65	.01	.95	.54	.07	.04	.05	.90	.47	.02	.95	.06	.12	T.		.02	.68	1.13	.12	9.73			
Flagstaff (3).	do.	.23	.15	T.	T.	.05	.34			.71			T.	1.39	.84	.29	.24		.37							.33	T.		.03	.15	.47	.20	5.83		
Florence.	Gila.	.02	.12		.30			.32	.60	.20				.03	1.20										.10						.72		3.61		
Fort Apache.	Salt.	T.	.07	.25	T.	.21		.02		.07	.18	.21		.03	.35	.14		T.	.22				.03	.41		T.		.12	.49	.18	T.		2.98		
Fort Huachuca.	San Pedro.	.03	.04	.02	.01			.04	.02	.05			.02	.09	.04	.02	.40	1.32	.80	.30										.10		.02		3.32	
Fort Mohave.	Colorado.																.25	1.10															2.02		
Gilaband.	Gila.	T.			.03											1.25	T.														.98		4.42		
Globe.	Salt.	.29	.20	.09	.33					.07				.15	.32	T.	.03		.19					.05	.15				.03		.13	.48	2.87		
Grand Canyon (1).	Colorado.					T.	.32	.26		1.46		.15			.20	.02	.98		.47													.10	.01	2.01	
Grand Canyon (2).	do.	.04																																	
Greer.	Little Colorado.					T.	.32	.26		1.46		.15			.20	.02	.98		.47																
Holbrook.	do.			.59	.14			.17	.37		.02	.30				.05	.27		.08												.41	.21	.09	2.70	
Intake.	Salt.		.21																																



TABLE 2—Daily precipitation for August, 1909. District No. 9—Continued.

Stations.	River basins.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
<i>Nevada.</i>																																		
Caliente.....	Colorado.....																																	
Las Vegas.....	do.....															.74										T.						.64	.40	1.78
Logan.....	do.....					.21	T.									.62	.13	.02											.01		.29	.58	1.86	

TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 9, Colorado Valley.

Date.	Wyoming.				Colorado.										Utah.										New Mexico.			
	Daniel.		Green River.		Durango.	Grand Junction.		Gunnison.		Meeker.		Steamboat Springs.		Emery.	Fort Duchesne.		Hite.		Moab.		St. George (Ex-periment station).		Fort Bayard.		Fort Wingate.			
	Max.	Min.	Max.	Min.		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	60	48	84	57	78	56	89	61	78	42	84	43	35	35	96	56	95	76	92	66	96	50	87	60	80	55	55	
2...	63	45	81	48	83	52	87	62	79	45	75	49	38	38	89	53	99	64	94	56	100	55	88	63	80	55	55	
3...	72	32	90	39	80	51	91	61	78	42	81	39	34	34	93	45	102	65	98	53	103	63	87	60	79	41	41	
4...	73	35	91	45	77	50	92	63	80	48	82	42	36	36	91	44	99	74	98	63	102	69	83	56	69	50	50	
5...	79	40	92	50	82	48	92	61	75	49	81	53	38	38	95	50	98	75	97	60	102	67	84	56	73	54	54	
6...	78	41	79	53	82	58	78	66	80	52	69	50	36	36	88	53	91	71	87	66	92	68	85	60	76	56	56	
7...	73	45	89	55	84	49	87	63	81	47	74	57	55	55	88	55	95	67	92	61	95	63	87	70	78	54	54	
8...	78	44	90	51	85	53	86	62	84	48	81	54	45	45	89	56	97	67	94	60	97	64	89	65	80	56	56	
9...	78	46	90	50	81	55	87	67	82	46	79	54	50	50	89	55	93	66	93	67	99	65	85	65	77	54	54	
10...	79	52	86	55	77	55	88	66	82	47	78	52	50	50	90	53	97	66	91	61	97	64	85	65	80	54	54	
11...	78	35	89	54	82	51	93	69	77	49	80	50	47	47	93	52	99	75	95	62	97	65	85	60	78	55	55	
12...	82	40	87	53	85	57	86	66	81	45	80	51	47	47	95	55	97	73	94	65	102	65	86	65	80	55	55	
13...	81	45	90	52	84	54	93	68	80	43	85	49	46	46	94	54	103	71	100	63	104	64	89	70	85	55	55	
14...	83	46	98	49	85	57	99	68	84	45	88	48	44	44	97	56	106	71	103	61	102	75	81	59	84	57	57	
15...	83	36	97	54	83	60	94	70	84	44	87	48	45	45	95	50	98	78	97	68	97	72	84	60	80	54	54	
16...	76	50	77	59	81	59	85	68	81	43	79	54	60	60	88	56	95	73	91	67	85	70	85	56	81	55	55	
17...	82	44	82	59	85	53	86	65	84	49	80	55	53	53	89	50	96	67	92	60	87	63	80	53	79	54	54	
18...	82	45	81	53	83	58	87	65	83	43	79	47	45	45	90	61	90	65	91	63	92	68	84	57	78	52	52	
19...	82	42	90	61	77	52	81	65	80	42	72	50	45	45	87	60	91	70	91	66	94	65	80	56	78	54	54	
20...	80	43	89	47	70	55	84	64	79	45	76	54	40	40	86	55	91	71	87	64	97	69	82	55	74	50	50	
21...	76	41	84	48	82	52	89	62	78	49	79	50	39	39	86	56	97	71	91	63	100	66	77	65	76	52	52	
22...	74	42	92	54	86	51	90	62	80	47	82	45	40	40	89	58	99	68	97	61	102	64	75	65	84	52	52	
23...	78	44	89	51	80	52	90	65	82	46	83	47	40	40	91	53	98	68	95	61	98	60	86	54	78	54	54	
24...	72	32	88	48	77	57	87	64	84	72	79	52	50	50	89	55	98	74	95	61	104	62	83	52	77	56	56	
25...	80	30	92	42	82	51	93	63	85	54	80	43	41	41	91	45	101	69	97	57	104	69	87	52	73	52	52	
26...	83	34	92	45	80	58	91	63	87	53	82	41	36	36	94	45	98	69	97	60	93	64	86	53	77	50	50	
27...	75	37	87	51	79	51	86	64	82	42	75	51	40	40	88	54	96	74	94	59	100	63	82	50	79	54	54	
28...	72	25	88	48	76	51	92	62	80	44	78	40	36	36	89	46	97	68	95	57	102	65	80	60	79	52	52	
29...	81	30	90	47	61	54	81	64	78	42	80	40	38	38	88	50	87	66	83	68	102	68	65	50	73	54	54	
30...	80	39	88	50	68	55	82	68	72	53	76	55	51	51	85	54	85	84	84	64	98	58	79	53	70	54	54	
31...	69	40	79	52	76	55	76	64	71	42	70	54	47	47	80	60	89	67	82	64	99	66	82	53	82	54	54	
Mns	76.8	40.3	87.8	51.2	79.7	53.9	87.8	64.5	80.4	46.4	79.2	48.6	43.3	43.3	89.9	53.1	96.0	69.8	86.7	62.2	97.5	64.8	83.2	58.7	77.6	53.4	53.4	53.4

Date.	Arizona.																								Logan, Nev.	
	Bisbee.		Flagstaff.		Fort Apache.		Grand Canyon.		Parker.		Phoenix.		Prescott.		St. Michaels.		San Carlos.		Tucson.		Yuma.		Logan, Nev.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	80	59	74	53	86	59	108	76	102	78	83	64	80	58	102	64	96	74	105	74	105	74	104	63		
2...	79	62	76	47	89	51	108	73	99	77	83	58	76	57	102	63	93	72	105	74	105	74	104	63		
3...	79	61	75	51	84	54	110	74	102	77	86	58	80	58	97	59	96	77	104	77	104	77	108	60		
4...	78	62	77	49	81	50	111	78	102	81	85	59	76	58	96	63	96	75	107	80	108	71	108	60		
5...	75	62	74	52	83	54	105	65	86	70	71	59	80	53	90	61	83	74	94	73	107	68	107	68		
6...	74	61	70	53	86	52	98	72	94	73	77	59	78	56	97	58	92	70	99	71	100	67	100	67		
7...	80	61	70	52	98	61	105	75	99	78	80	59	83	56	98	64	95	70	102	75	100	67	100	67		
8...	78	61	76	49	88	60	100	75	93	78	80	57	83	55	99	60	92	71	92	77	103	71	103	71		
9...	76	59	72	54	85	60	96	73	95	70	79	59	78	56	101	61	93	71	103	76	97	77	103	71		
10...	80	60	75	48	85	54	108	72	100	76	80	55	80	53	99	56	98	73	107	76	103	69	103	69		
11...	81	63	76	53	90	61	113	76	105	76	84	59	83	58	99	66	100	74	110	75	105	70	105	70		
12...	79	62	75	52	87	59	109	83	101	75	83	58	79	57	97	71	96	74	106	78	106	70	106	70		
13...	75	60	80	52	84	60	107	80	99	77	85	62	85	61	95	73	92	70	102	81	107	70	107	70		
14...	78	62	81	53	86	61	106	76	97	76	77	63	82	51	96	71	95	72	97	81	107	75	107	75		
15...	77	63	70	56	83	59	90	70	91	74	72	62	84	57	96	72	90	66	101	76	97	70	107	70		
16...	78	61	72	54	84	58	86	73	94	73	73	61	82	59	96	63	90	62	80	71	80	72	107	72		
17...	78	60	75	49	86	56	100	71	96	74	80	56	82	57	99	70	91	68	93	72	90	70	107	70		
18...	75	57	75	49	83	55	103	73	94	73	78	56	77	56	94	67	90	65	97	75	96	70	107	70		
19...	81	60	75	49	87	57	106	76	98	74	79	55	76	54	98	68	94	69	99	77	97	74	107			



Climatological Data for August, 1909.  
DISTRICT No. 10, GREAT BASIN.

ALFRED H. THIESSEN, District Editor.

TEMPERATURE.

The temperature for the district as a whole was slightly below the normal during August. The month was warmer than usual in Wyoming, the greater part of Utah, northern California, and the western part of Nevada. The greatest excess being in Utah. In the extreme northwestern part of Utah, southern Idaho, eastern Nevada, and the greater part of California the temperature averaged below the normal, the greatest deficiencies being in central California and Nevada.

The usual regional variation in temperature may be noted. The monthly means varied greatly, ranging from 96.6° at Bagdad, to 55.5° at Truckee, Cal., a difference of 41.1°. This difference is considerably more than usual, as the monthly mean at Bagdad was 3.0° above the normal, and that at Truckee was 7.9° below the normal, making the normal variation for August about 30°.

Abnormally warm weather occurred over Utah and Wyoming on the 4th and 5th, and on the 12-14th, and over California and Nevada on the 4-5th and 17-19th. Maximum temperatures of over 100° occurred in all States except Wyoming, and principally in the first half of the month.

Low minimum temperatures occurred usually from the 1st to the 4th and from the 24th to the end of the month in Utah and Wyoming, and in Nevada, Idaho, and California they generally occurred from the 6th to the 8th, 14th to the 16th, and from the 24th to the end of the month. Temperatures of 32° and below occurred in all States, but of course, were confined to the mountain districts.

Although minimum temperatures of 32° and below were recorded, no killing frosts were reported in the arable districts.

The monthly mean temperature for the district was 70.2°, which is 0.2° below the normal.

The highest monthly mean was 96.6° at Bagdad, San Bernardino County, Cal.

The lowest monthly mean temperature was 55.5° at Truckee, Nevada County, Cal.

The greatest excess in temperature for the month was 3.6°

at Hensfer, Summit County, Utah, and the greatest deficiency was 7.9° at Truckee, Nevada County, Cal.

The highest temperature was 112° at Carlin, Elko County, Nev., on the 17th; the next highest was 111° at Bagdad, San Bernardino County, Cal., on the 4th.

The lowest temperature was 21° at Truckee, Nevada County, Cal., on the 24th.

The greatest daily range was 76° at Carlin, Nev.

PRECIPITATION.

The rainfall was generally above normal in Utah, about normal in Wyoming and California, and below normal in Nevada. In Utah the average rainfall was considerably in excess of the normal. The high day temperatures caused a large number of thunderstorms in Utah, Nevada, and in the mountain districts of California. At many places in Utah the monthly amount was twice the normal rainfall for August.

Showers fell at many places in Utah and Wyoming on the 1st and continued every day at some place in these States until the end of the month. In Nevada and California most of the showers fell during the last half of the month. The heaviest showers occurred usually on the last two days of the month when more than the normal monthly amount fell at many stations especially in Utah. There were many localities in western and northern Nevada where the monthly amount was either a trace or zero.

In general the precipitation was plentiful in Utah and the east-central portion of Nevada; but in other portions of the district it was deficient.

The average monthly precipitation for the district was 1.85 inches, which was 1.02 inches above the normal.

The greatest monthly amount was 5.12 inches at Beaver, Beaver County, Utah.

Several stations in Nevada and California reported no rainfall for this month.

The greatest amount in twenty-four hours was 2.20 inches at Minersville, Beaver County, Utah.

The average number of rainy days was 7.

TABLE 1.—Climatological data for August, 1909. District No. 10, Great Basin.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Wyoming.																				
Border.	Uinta	6,085	7	64.0	+ 3.5	90	14	32	29†	52	1.11	- 0.12	0.40	0.0	5	12	13	6	w.	S. W. Condron
Evanston	do.	6,860	13	63.4	+ 2.2	85	14	34	3	48	1.58	+ 0.58	0.56	0.0	10	11	19	1	w.	Frank Tucker
Idaho.																				
Geneva	Bear Lake										2.01		1.03	0.0	4	11	19	1		F. W. Boehme
Grace	Bannock	5,400	3	69.4		93	15†	38	28	49	1.77		0.45	0.0	9	19	9	3		E. A. Ekern
Oxford	do.	4,750									0.80		0.39	0.0	7	22	5	4		Edwin Smith.
Paris	Bear Lake	5,946	13	63.9	- 0.9	89	15	30	28	48	1.59	+ 0.68	0.50	0.0	7	21	4	6	w.	John Norton.
Stone	Oncida	4,520	2	68.2		103	17	29	24	60	0.98	+ 0.49	0.42	0.0	6	24	7	0		Thos. W. Roe.
Weston	do.	4,610	12	66.2	- 0.4	96	30	34	7	46	1.01	- 0.05	0.80	0.0	4				s.	Wm. T. Chatterton.
Utah.																				
Annabella	Sevier	5,250	4								3.27	+ 1.89	1.41	0.0	16					J. W. Fairbanks.
Beaver	Beaver	6,000	6	67.8	+ 1.4	88	13	51	9	34	5.12	+ 3.71	0.87	0.0	15	9	12	10	sw.	James Connell.
Black Rock	Millard	4,872	9																	A. H. Cassell.
Blacksmiths Fork	Cache	5,500																		U. S. Forest Service.
Card Canyon	do.	5,000																		Do.
Castle Rock	Summit	6,244	6								2.28	+ 1.44	0.50	0.0	13	14	10	7	w.	David Moore.
Cedar City	Iron	5,750	4																	J. M. Foster.
Corinne	Boxelder	4,240	39	76.8	+ 2.4	105	12	47	4†	51	1.43	+ 0.86	1.43	0.0	1	15	8	8	s.	A. C. Murphy.
Coyote	Garfield		8																	Mrs. E. Clayton.
Deseret	Millard	5,441	15	73.6	+ 2.6	98	14	48	3	45	1.70	+ 1.21	0.78	0.0	8	15	8	8	s.	S. W. Weston.
Enterprise (near)	Washington	4,270	1								2.55		2.07	0.0	3	6	12	13		John Day
Farmington	Davis	4,267	9	71.8	+ 1.4	93	14	50	3†	39	0.94	- 0.02	0.38	0.0	5	21	9	1	sw.	Charles Boylin.
Fillmore	Millard	5,100	19	74.8	+ 0.5	101	14	50	2	47	3.02	+ 2.19	0.75	0.0	13					J. J. Storley.
Frisco	Beaver	7,318	15	72.4	+ 0.7	100	25	53	2†	44	1.87	+ 0.69	0.80	0.0	4					E. R. Smyth.
Garland	Boxelder	4,350		72.4		95	14	44	24	44	1.07		0.85	0.0	3	25	4	2	s.	Harry B. Shaw.
Garrison	Millard		6	71.8		91	5	45	24	42	0.20	- 0.44	0.10	0.0	2	9	6	16	s.	E. M. Smith.
Golden Reef	Beaver	7,000									3.16		1.17	0.0	9					D. W. Woodward
Government Creek	Tooele	5,277	9	72.7	+ 0.9	95	14	45	28	42	2.75	+ 1.60	0.60	0.0	15	15	13	3	s.	Walter James.
Heber	Wasatch	5,066	16	67.8	+ 3.1	92	4†	36	3	54	3.04	+ 2.07	1.10	0.0	10	17	7	7	s.	John Crook.
Henefer	Summit	5,301	10	67.6	+ 3.6	93	14	32	3	57	2.51	+ 1.37	0.68	0.0	15	11	16	4	w.	Wm. Brewer.
Hoyts Canyon	do.	7,400									2.60				18					James Woolstenhulme.
Huntsville	Weber	5,100	14								1.70	+ 0.81	0.70	0.0	7	20	8	3		Lars Petersen
Ibapah (near)	Tooele	7,500	4																	E. S. Gamwell
Kanosh	Millard	5,250	1								4.47		1.66	0.0	13					Geo. Crane.
Kelton	Boxelder	4,230	31	67.8	- 6.8	98	16†	40	2†	58	0.40	+ 0.20	0.40	0.0	1	0	28	3	sw.	F. W. Klock.
Levan	Juab	5,010	19	70.1	+ 0.3	90	14	49	3	39	2.18	+ 1.25	0.81	0.0	12	11	9	11	sw.	Wm. Brown.
Logan	Cache	4,507	18	73.0	+ 2.4	91	12†	49	28	31	1.08	+ 0.28	0.48	0.0	5					State Agricultural College
Lucin	Boxelder	4,504	5	69.2	+ 1.1	99	14	33	28	57	0.21	- 0.17	0.21	0.0	1	15	13	3		C. J. Burke.
Lund	Iron	5,086	1																	M. E. Smith.
Manti	Sanpete	5,775	15	62.9	- 6.4	83	4†	40	14	35	1.99	+ 1.37	0.59	0.0	11	10	7	14		J. M. Anderson.
Marion	Summit	6,750	5								2.79	+ 0.98	0.75	0.0	14	7	3	21	s.	James Woolstenhulme.
Marysville	Plute	6,180	10	67.1	+ 1.9	91	14	43	2	44	2.02	+ 0.29	0.55	0.0	16	5	8	18	nw.	John W. Henry.
Meadowville	Rich	6,200	10	63.7	- 0.2	83	1†	40	3†	42	1.45	+ 0.38	0.80	0.0	3	22	6	3	w.	J. S. Moffatt.
Millford	Beaver	4,962	5	72.0		95	5†	52	4	38	2.75		1.00	0.0	4	5	13	13	sw.	C. M. Temple.
Millville	Cache	4,848	14								1.55	+ 0.62	0.83	0.0	7					Fred Yeates.
Minersville	Beaver	5,070	12								4.28	+ 3.36	2.20	0.0	9					Geo. Roberts.
Modena	Iron	5,479	9	70.0	+ 1.4	92	14	45	2	42	3.53	+ 3.14	2.08	0.0	10	7	15	9	w.	U. S. Weather Bureau
Morgan	Morgan	5,080	6	60.8		92	2†	49	3	51	3.67		1.40	0.0	7	11	13	7	sw.	W. Viskic.
Moroni	Sanpete	5,519	1								2.80		0.85	0.0	14	1	26	4	sw.	B. F. Eliason.
Mount Nebo	Utah	4,650	8	74.2	+ 0.9	99	12	50	24	43	2.77	+ 2.32	1.54	0.0	10	16	12	3	s.	D. C. Wolkey.
Mount Pleasant	Sanpete	5,859	17																	Jane Martin.
Nephi	Juab	6,059	6								2.24	+ 1.01	0.56	0.0	14	13	14	4	sw.	A. M. Madsen.
Nephi (near)	do.	6,059									2.84	+ 0.45	0.72	0.0	11	8	19	4	sw.	S. R. Boswell.
Oak City	Millard	4,900	5																	Jos. Finlason.
Ogden (1)	Weber	4,310	8	73.8	+ 2.1	91	5	50	3	39	1.36	+ 0.11	0.73	0.0	4	20	6	3	nw.	Enoch Farr.
Ogden (2)	do.	4,310	39	77.8	+ 1.1						1.57	+ 1.00	1.20	0.0	3	27	3	1	s.	W. H. Chevers.
Panguitch	Garfield	6,560	1								2.44		1.00	0.0	12	0	10	21		F. C. Syrett.
Panguitch Lake	do.	9,000									4.30		2.10	0.0	10	0	9	22	s.	James E. Prince
Park City	Summit	7,800	12	67.2	+ 5.1	92	2†	42	3†	48	4.04	+ 3.13	1.20	0.0	6	10	19	2		Irvin Evans.
Parowan	Iron	5,970	18	68.3	- 1.1	90	14	51	29	32	4.59	+ 3.30	0.70	0.0	12					Scott Matheson
Payson	Utah	4,637	6								1.73	+ 0.96	0.68	0.0	12	6	12	13	sw.	D. L. Coombs.
Pinto	Washington	5,907	12	65.6	+ 0.8	89	14	40	3	48	3.33	+ 1.40	1.65	0.0	7	6	7	17	sw.	John H. Harrison.
Promontory	Boxelder	4,913	2								3.10	+ 2.76	1.50	0.0	5					F. C. Houghton.
Provo	Utah	4,532	17	72.8	+ 2.1	96	14	46	3†	45	2.03	+ 1.48	0.88	0.0	6	10	20	1	s.	James A. Oliver.
Randolph	Rich	6,442	6																	Wm. Rex.
Richfield	Sevier	5,350	19	70.3	+ 1.0	94	2†	47	2	47	2.59	+ 1.92	0.50	0.0		10	0	13		Joseph J. Jensen.
Richins Summit	Summit	6,500									2.70		0.84	0.0	18					Ernest H. Brewer.
Saltair	Salt Lake	4,220	6	76.4	+ 3.4	90	5†	62	25†	24	1.26	+ 1.40	0.39	0.0	10					E. J. Bench.
Salt Lake City	do.	4,366	35	75.5	0.0	95	14	56	28	32	1.74	+ 0.96	0.75	0.0	11	11	16	4	se.	U. S. Weather Bureau.
Scipio	Millard	5,260	14	68.8	+ 0.2	92	14	38	3	53	2.10	+ 1.07	0.43	0.0	12	10	8	13	sw.	Thos. Memmott.
Silver Lake	Salt Lake	1	61.9			84	14	34	3	47	4.14		0.97	0.0	17	10	5	16	w.	N. S. Fetherolf.
Soldier Summit	Utah	7,474	17																	Agent, D. & R. G. Ry.
Spanish Fork Canyon	do.			74.1		96	4	53	3	38	2.52		1.32	0.0	11	8	11	12		U. S. Reclamation Service
Thistle	do.	5,075	17																	Agent, D. & R. G. Ry.
Tooele	Tooele	4,900	13																	



TABLE 1.—Climatological data for August, 1909. District No. 10—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Nevada—Cont'd.																				
Columbia	Esmeraldo	5,750	3	77.4		92	5†	55	1	34	0.57		0.19	0.0	4	20	7	4	se.	A. Booth.
Dutton*	Elko	5,100	2	65.0		100	26	25	24†	67	0.00		0.00	0.0	0	25	6	0	sw.	Golconda Cattle Co.
Elko	do	5,342	39	66.4	- 1.7	93	4†	37	15	55	0.00	- 0.31	0.00	0.0	0	21	3	7	ne.	Agent, So. Pac. Co.
Ely	White Pine	6,421	19	64.5	- 0.1	91	5†	47	2	40	2.43	+ 1.36	2.08	0.0	3	27	2	2	w.	G. C. Hunting.
Eureka	Eureka	6,500	7	70.8		93	5	44	24	42	1.64		0.70	0.0	8	17	9	5	s.	Clay Simms.
Fallon	Churchill	3,965	5	73.2		98	19†	43	24	50	0.06	0.00	0.05	0.0	2	19	8	4	nw.	U. S. Reclamation Service
Fernley	Lyon	4,200	2																	
Gardnerville	Douglas	4,830	10	66.5		97	18	36	24†	56	T.		T.	0.0	0	21	6	4	s.	William Dangberg.
Geyser	Lincoln	.....	5																	
Golconda	Humboldt	4,697	31	70.7	- 1.9	101	18	36	31	53	0.00	- 0.12	0.00	0.0	0	22	7	2	w.	Agent, So. Pac. Co.
Halleck	Elko	5,631	17								0.04	- 0.16	0.04	0.0	1	13	15	3	nw.	Do.
Hamilton	White Pine	7,977	3																	
Humboldt	Humboldt	4,236	39	73.0	+ 1.0	96	19	45	23	44	T.	- 0.09	T.	0.0	0	26	2	3	nw.	Agent, So. Pac. Co.
Jean	Clark	2,074	2	82.0		106	4	40	31	48	0.12		0.08	0.0	2	19	6	6		Agent, Salt Lake Route.
Lectville	Churchill	4,020	3	74.0		99	20†	43	24	48	0.00		0.00	0.0	0	24	5	1	w.	U. S. Reclamation Service
Lewers Ranch	Washoe	5,500	22	68.2	+ 0.1	97	19	40	23	47	0.02	- 0.41	0.02	0.0	1	16	15	0		Ross Lewers.
Lovelock	Humboldt	3,977	17	73.2	+ 2.4	105	19	42	24	52	0.04	+ 0.01	0.04	0.0	1					John S. Case.
McAfees Ranch	Esmeraldo	4,835	6																	
Millett	Nye	.....	2	66.2		93	5†	38	14	54	1.02		0.45	0.0	6	15	9	7	s.	Fred J. Jones.
Mina	Esmeraldo	4,600	3	76.0		100	18	48	24	48	T.		T.	0.0	0	19	3	9	w.	Agent, So. Pac. Co.
Palmetto	do	6,780	20																	
Potts	Nye	6,990	17	63.9	- 3.9	90	19†	35	1†	50	1.80	+ 1.14	1.00	0.0	3	14	2	15	s.	Miss Mamie Potts.
Quinn River Ranch	Humboldt	4,850	8	67.2		101	18†	31	24	62	0.07		0.07	0.0	1	27	2	2	sw.	F. M. Payne.
Reno	Washoe	4,532	39	69.6	+ 2.6	97	19	41	23	47	0.09	- 0.16	0.05	0.0	2	25	6	0	w.	U. S. Weather Bureau.
Soda Lake	Churchill	4,534	39			103	18				0.05		0.05	0.0	1	22	9	0	w.	U. S. Reclamation Service
Tecoma	Elko	4,812	32	68.6	- 4.2	99	20†	38	27†	58	1.39	+ 1.14	1.01	0.0	6	20	5	6		Agent, So. Pac. Co.
Tonopah	Nye	6,090	3	73.4		90	4†	56	24	30	0.91	+ 0.52	0.37	0.0	7	15	13	3	se.	U. S. Weather Bureau.
Wabuska	Lyon	4,347	7	68.4		96	29	38	27	50	T.		T.	0.0	0	25	5	1	e.	J. G. Young.
Wells	Elko	5,631	38	65.3	- 3.3	97	12	34	5†	57	0.04	- 0.09	0.02	0.0	2	20	3	8	s.	Agent, So. Pac. Co.
Winnemucca	Humboldt	4,432	31	69.6	- 1.2	96	20†	37	24	53	0.01	- 0.16	0.01	0.0	1	27	3	1	ne.	U. S. Weather Bureau.

\* Precipitation included in that of the next measurement.

\*\* Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.

† Also on other dates.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

|| Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

||| Estimated by observer.

||| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

\*, †, ‡, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—Daily precipitation for August, 1909. District No. 10, Great Basin.

Stations.	River basins.	Day of month.																															Total.					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
Wyoming.																																						
Border	Bear						.28	.29	T.	.12		T.				T.				T.											.02	.40	1.11					
Evanston	do.	.10					.08		.05			.11	.04			.10	.26			.07			.56	T.							T.		.21	1.58				
Idaho.																																						
Geneva	Bear	1.03						.20											.02													.76	2.01					
Grace	do.						.13	.08			.09		.02		.30	T.							.21						.04	.45	.45	1.77						
Oxford	do.										.01		.02		.05								.01	.10							.02	.59	0.80					
Paris	do.	.22	.26					.10		.07			.02																		.42	.50	1.59					
Stone	Deep Creek														.03				.24		.15	.02								.12	.42	0.98						
Weston	Bear															.12						.03	.06								.80	1.01						
Utah.																																						
Annabella	Sevier	.06			.05	.02			.38	.42	.04	.01			.11	.02	.61	.07	.03		.02								.01	.01	1.41	3.27						
Beaver	do.			.17		.07	.06	.61	.52	.87	.05				.80	.18	.33			.22		.32					T.	.03	.09		T.	.80	5.12					
Black Rock	do.																																					
Blacksmiths Fork	Bear																																					
Card Canyon	do.																																					
Castle Rock	Weber	.12						.05	.03	.05	.30				.25			.05	.33	.05		.50								.20	.05	.30	2.28					
Cedar City	Desert																																					
Corinne	Bear	T.													T.							T.									T.	1.43	1.43					
Coyote	Sevier																																					
Deseret	do.				.05	.04	.05	T.							.30	.13			.19													T.	.78	1.70				
Enterprise (near)	Desert										T.				.27		.21										T.						2.07	2.55				
Farlington	Great Salt Lake								.06	.30					.05			T.				T.	.15										.38	0.94				
Fillmore	Sevier			.15	T.		.11	.12	.02	.41	.02				.26	.20	.09	.37	.75									T.			.09	.43	3.02					
Frisco	Desert									.02																						.55	.80	1.87				
Garland	Bear	.06													.16																		.85	1.07				
Garrison	Desert																																					
Golden Reef	do.					.07		.13							.29		.43				.06							.34		.07	.60	1.17	3.16					
Government Creek	do.	.04			T.	.11	.22	.08		.42	T.				.30	.42	.06	.02		*		.60	T.				.10				.30	.12	1.10	3.04				
Heber	Jordan	.22			.10	.05	.15								.25	.15		T.	T.			.60											.12	.68	2.51			
Henefer	Weber	.01		T.	T.		.06	.22	.02		.02	.01			.35	.11	.01	.22	.02				.62	.04										.70	1.70			
Hoyts Canyon	do.																																					
Huntsville	do.	T.			T.	T.		.18	.40						.03			T.	.26		.09	.04																
Ibapah (near)	Desert																																					
Kanosh	Sevier				.54	.05		.04	.08	.64	.25				.37		.06	.22	.40									.07			.09	1.66	4.47					
Kelton	Great Salt Lake																																					
Levan	Sevier			.01		.05	.08			.27	.81	T.			.12	.31	.10	.02	T.		.19	.07											.40	0.40				
Logan	Bear	.06													.01																			.48	1.08			
Lucin	Desert	T.								.08					T.							T.	T.											.21	0.21			
Lund	do.																																					
Manti	Sevier	.05			.06	T.	.16		.20	.10					.12	.59	.31	.10	.04														.26	1.99				
Marion	Weber	.04	.20			.31	.15	.09			.05				.57	.20	.42	.03	.02		.03	.75	T.										.05	.30	2.79			
Marysville	Sevier	.13			.06	.12	.02	.01	.14	.01	.15	.10	.17		T.	.27	.10	.12	.04		.03													.55	2.02			
Meadowville	Bear	T.			T.	T.				.50	.50																							.50	1.45			
Millford	Sevier				T.	T.				.16					.75																			1.00	2.75			
Millville	Bear	.12													.06				.34			.01	.03										.83	1.55				
Minersville	Sevier			T.	T.	T.		.74	.12	.04	.02				.55	.21					.19													2.20	4.28			
Modena	Desert			.01	T.	T.	.21	.14	T.	T.					.01	T.	.61	T.			.06						.21	T.		.01	.43	1.82	3.53					
Morgan	Weber																																					
Moroni	Sevier	.04			T.	T.	.18	.17	T.	.01	.03	.85	.24		.09	T.	.47	.04	.17	T.	.16	T.	T.										.33	.02	2.80			
Mount Nebo	Jordan	T.			T.	T.	.13	.18	.12		T.		.12		.20	.10	.05	T.				.25												.08	1.54	2.77		
Mount Pleasant	Sevier																																					
Nephi	Jordan				.05	.05	.04	.08	.05						.28	.15	.18	.07	.56		.15	.03												.45	.10	2.24		
Nephi (near)	do.				.06			.08			.32				.65		.72	.05	.07	.08		.03												.28	.50	2.84		
Oak City	Sevier																																					
Ogden (1)	Weber									.05	.15																								.73	1.36		
Ogden (2)	do.									.06	.31																								1.20	2.57		
Panguitch	Sevier				.01	.07					.06	.05			.01	.03	1.00	.07			.04														1.00	2.44		
Panguitch Lake	do.					.10									.50	.40	.20	T.	.10															*	2.10	4.30		
Park City	Weber	.40													1.00	.20																			1.20	4.04		
Parowan	Desert						.13		.07	.50		.36			.70	.60	.61		.15																.50	.07	.35	4.59
Payson	Jordan			T.			.05	.12	.05	.04		.11	.04		.68	.18	.05				.15	.22													.94	1.73		
Pinto	Desert					.04		.02							.54				.38																.10	.60	1.65	3.33
Promontory	Great Salt Lake																																					



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[illegible]

TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 10, Great Basin.

Date.	Wyoming.				Weston, Idaho.		Utah.																								Burns, Oreg.		Elko, Nev.	
	Border.		Evanston.				Corinne.		Deseret.		Government Creek.		Marysville.		Modena.		Ogden.		Parowan.		Provo.		Salt Lake City.											
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.					
1...	79	39	76	47	89	58	99	49	89	63	88	63	84	57	86	55	85	68	84	55	85	65	83	65	85	36	90	47						
2...	80	34	73	40	86	47	95	52	89	50	84	55	85	43	87	45	82	58	85	56	84	53	81	60	87	52	88	41						
3...	85	35	82	34	90	44	100	49	93	48	92	50	88	44	90	48	89	50	86	57	91	46	92	60	91	50	92	42						
4...	88	40	82	43	93	48	98	47	93	57	94	60	80	52	89	58	90	65	86	54	93	53	93	68	85	40	93	42						
5...	87	45	83	55	93	57	101	55	94	64	93	63	80	52	90	64	91	66	81	59	93	59	93	72	82	46	88	41						
6...	82	48	76	54	88	51	97	59	82	67	84	61	77	53	79	60	87	70	73	56	87	62	84	64	84	50	91	42						
7...	79	48	81	50	85	57	94	65	88	54	86	53	83	47	84	53	83	64	81	54	86	55	86	61	82	38	87	42						
8...	80	46	79	46	86	51	95	57	88	53	87	51	84	52	79	51	86	63	83	55	87	55	89	62	86	42	85	50						
9...	76	60	78	49	87	54	97	59	86	58	85	58	82	55	78	58	83	63	85	56	85	58	86	62	92	52	91	42						
10...	84	55	78	52	.....	.....	95	64	87	56	86	54	81	53	84	54	84	61	79	54	88	60	85	65	91	48	89	49						
11...	81	54	80	50	.....	.....	99	65	91	61	92	60	85	51	88	54	89	66	74	58	91	59	91	67	90	44	92	47						
12...	88	46	82	53	.....	.....	105	59	92	59	91	60	83	51	87	56	90	66	80	56	91	61	91	67	87	43	93	43						
13...	89	51	83	52	91	59	104	64	94	56	93	61	85	50	88	57	89	69	86	55	93	60	92	70	86	38	92	42						
14...	90	45	85	50	92	48	104	56	98	62	95	60	91	51	92	55	.....	.....	90	60	96	55	95	68	90	39	92	40						
15...	86	44	83	51	87	52	100	55	84	71	78	61	85	63	75	64	90	64	83	59	91	59	88	62	89	40	92	37						
16...	85	53	78	55	86	55	93	58	83	64	84	58	70	60	78	62	84	84	78	60	81	63	82	65	88	38	93	41						
17...	88	53	77	52	93	48	100	57	85	63	81	55	74	58	77	60	87	64	71	60	85	64	85	93	60	90	46	46						
18...	86	47	80	53	91	51	101	55	83	61	81	59	80	51	79	55	85	63	77	54	83	62	84	66	95	54	86	52						
19...	84	49	81	52	90	53	95	58	88	62	85	55	80	55	77	56	84	63	79	54	90	62	88	66	100	56	92	42						
20...	86	44	77	47	90	49	97	55	90	55	87	55	82	48	86	54	84	63	81	53	90	58	89	67	92	41	87	40						
21...	85	41	79	42	90	57	95	68	89	65	86	67	83	53	84	60	84	65	83	54	95	61	88	60	88	42	86	40						
22...	84	52	77	50	.....	.....	94	64	91	60	85	54	86	52	88	58	83	65	84	55	90	60	87	57	85	39	91	42						
23...	82	52	78	52	.....	.....	97	53	92	63	90	65	83	49	87	55	84	67	85	54	92	56	89	65	84	40	90	38						
24...	80	32	77	42	.....	.....	93	47	87	52	85	53	85	51	88	56	79	55	83	53	87	52	82	59	88	42	88	42						
25...	86	35	83	41	97	51	94	50	90	59	87	66	46	90	56	85	58	58	53	53	49	49	89	62	89	43	86	38						
26...	94	37	82	40	.....	.....	97	53	91	55	91	72	80	47	86	58	83	61	86	54	94	51	91	63	85	31	90	46						
27...	83	41	77	43	.....	.....	100	51	89	58	85	56	84	47	85	53	81	59	84	53	88	54	83	66	75	37	89	48						
28...	82	38	80	37	.....	.....	97	55	93	52	87	45	85	47	87	58	84	51	82	52	90	46	85	56	85	44	92	42						
29...	94	32	79	44	.....	.....	99	49	90	89	88	68	82	56	82	58	86	63	82	51	88	53	87	64	94	51	90	40						
30...	85	35	80	42	96	54	97	51	89	60	84	56	86	55	77	60	82	64	82	52	87	57	85	66	85	53	91	42						
31...	75	55	70	53	80	60	96	52	67	63	76	56	70	55	64	59	71	60	78	52	72	62	73	63	85	54	92	43						
Mns	83.4	44.7	79.2	47.5	.....	.....	97.8	55.9	88.7	58.5	86.9	58.5	82.5	51.7	83.6	56.5	85.0*	62.6*	81.5	55.1	88.6	57.1	87.0	64.0	87.7	44.6	89.9	42.9						

Date.	Nevada.																								
	Ely.		Eureka.		Fallon.		Jean.		Loveclock.		Millet.		Mina.		Quinn River Ranch.		Reno.		Tecomah.		Tonopah.		Winnemucca.		
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	88	57	86	56	89	54	98	78	92	55	84	46	94	57	88	46	83	61	90	48	91	61	87	56	
2...	87	47	88	47	93	51	98	75	96	53	88	41	98	54	88	45	89	48	96	43	86	61	89	44	
3...	88	48	90	57	96	54	104	80	98	49	89	43	99	60	94	41	91	53	92	41	88	64	95	50	
4...	87	50	92	56	96	52	106	84	93	47	92	45	99	53	92	40	90	51	96	43	90	66	92	48	
5...	91	53	93	51	95	47	102	73	93	45	93	44	98	59	90	48	88	47	98	43	90	65	90	50	
6...	84	54	90	52	92	48	92	68	94	47	90	50	94	59	86	57	84	50	97	47	84	60	88	48	
7...	78	51	87	55	89	45	95	75	95	45	87	51	92	60	88	57	85	47	96	41	81	60	88	50	
8...	81	54	83	52	93	47	100	76	95	53	85	47	95	56	90	47	87	51	94	40	82	61	88	59	
9...	86	56	79	60	91	60	95	73	95	62	85	49	92	58	92	48	86	55	96	40	81	63	93	53	
10...	84	53	86	57	89	50	100	76	94	59	86	48	95	58	90	53	86	50	96	42	82	59	90	51	
11...	85	58	89	54	90	51	102	80	96	63	89	43	97	57	.....	.....	87	50	98	47	85	60	91	49	
12...	88	49	90	56	92	53	104	80	95	60	90	43	96	56	.....	.....	85	50	98	45	86	63	90	46	
13...	91	54	89	51	92	48	102	80	97	47	89	43	98	51	92	32	90	45	98	41	86	61	92	44	
14...	90	52	91	54	90	48	102	70	94	48	92	38	98	52	90	36	88	45	98	40	90	63	91	41	
15...	88	55	90	57	89	45	80	52	96	44	93	45	98	56	92	.....	88	43	96	41	87	65	88	40	
16...	84	51	89	57	93	46	84	58	99	49	90	46	99	62	94	35	94	47	96	42	86	60	92	40	
17...	85	54	92	57	95	49	88	60	103	51	93	50	98	64	100	38	96	52	96	42	84	65	96	48	
18...	91	54	91	58	96	58	92	60	104	52	90	51	100	60	101	42	96	58	97	40	86	64	96	54	
19...	88	56	91	53	98	49	95	66	105	55	92	46	98	61	101	46	97	58	98	40	90	63	96	52	
20...	85	53	90	62	98	48	98	67	98	54	89	45	93	60	83	46	89	60	99	41	86	58	96	50	
21...	88	58	80	58	94	56	98	70	99	57	89	56	90	60	92	35	87	53	99	41	84	61	91	56	
22...	86	52	82	52	93	57	100	70	97	53	88	51	88	52	.....	.....	83	53	97	40	86	64	90	56	
23...	84	55	82	51	82	46	98	69	86	45	85	47	95	50	80	46	80	41	94	39	82	61	79	47	
24...	90	52	87	44	87	43	100	65	93	42	87	40	97	48	86	31	88	43	96	41	86	56	87	37	
25...	88	56	89	50	95	47	98	67	100	46	91	39	98	54	94	38	93	49	96	40	90	67	93	40	
26...	91	58	92	57	97	52	100	60	94	46	93	45	96	57	94	42	90	51	94	40	87	65	94	44	
27...	88	58	87	51	93	47	98	56	91	46	88	47	95	51	88	44	89	46	95	38	87	65	83	54	
28...	86	52	89	49	92	48	100	55	87	56	84	45													



Climatological Data for August, 1909.  
DISTRICT No. 11, CALIFORNIA.

Prof. ALEXANDER G. McADIE, District Editor.

TEMPERATURE AND PRECIPITATION.

The most noticeable feature of August, 1909, was the rainy period from the 28th to the 31st. Considering the district as a whole, the rainfall was in excess of the normal 0.06 inch. In the Sierra Nevada and in the Sierra Madre unsettled conditions with frequent showers prevailed. In fact, as will be shown in the reports for sections 9 and 10, there was a widespread area of cloudiness in the southwestern portion of the United States.

The temperature was slightly below the normal. There were no prolonged hot spells, and although maximum temperatures at many points exceeded 100°, it must be remembered that this is a normal condition. The highest temperature recorded was 114° on August 11 at Mammoth Tank, and the lowest recorded was 24° on August 23 at Beckwith. It may be of some interest to note that minimum temperatures of 26° were

recorded on the nights of August 30 and 31 on the summit of Mount Whitney, elevation 14,502 feet. A thermograph well exposed showed the following numbers of hours with temperatures below freezing on various dates: August 28, 12 hours; 29th, 13 hours; 30th, 12 hours; 31st 11 hours. This record is interesting as showing the night temperatures at high levels.

The highest mean temperature for the month, 96.6°, occurred at Bagdad, and the lowest mean, 52.9°, at Point Reyes Light. The mean temperature for the district was 72.1°, a departure of -0.2°. The greatest daily range reported was 64° at Alturas, Beckwith, and Madeline. The prevailing wind was west.

The greatest rainfall, 7.21 inches, occurred at Needles. The greatest rainfall in twenty-four hours was 2.50 inches at Calexico on the 16th. At Warner Springs on the 26th, 1.67 inches fell in fifty minutes.

TABLE 1.—Climatological data for August, 1909. District No. 11, California.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.
Oregon.																			
Klamath Agency.....	Klamath.....		1																H. G. Wilson.
Klamath Falls.....	do.....	4,250	18	64.8	- 2.2	91	18†	36	23	42	0.28	- 0.03	0.28	0.0	1	27	3	1	nw.
Lakeview.....	Lake.....	4,825	24	65.6	- 0.7	95	17†	34	23	51	0.10	- 0.21	0.10	0.0	1	27	1	3	sw.
Long Valley.....	do.....																		Walter Dutton.
Merrill.....	Klamath.....	4,070	4	61.6		92*	18†	34*	23	49*	0.31		0.31	0.0	1	21	7	3	nw.
Yonna.....	do.....	4,146	1	61.2		95	18†	30	29	60	0.20		0.20	0.0	1	26	5	0	s.
California.																			
Alturas.....	Modoc.....	4,460	5	64.6		100	18†	30	24	64	0.26	+ 0.14	0.25	0.0	2	27	4	0	sw.
Angiola.....	Tulare.....	208	9	79.8	+ 2.4	110	3†	50	12†	52	0.00	0.00	0.00	0.0	0	31	0	0	nw.
Antioch**.....	Contra Costa.....	46	30	78.6	+ 4.1	96	16†	60	9		0.00	- 0.01	0.00	0.0	0	31	0	0	nw.
Aptos**.....	Santa Cruz.....	102	24	61.5	+ 0.1	75	17	52	28		0.00	- 0.05	0.00	0.0	0	26	4	1	nw.
Auburn.....	Placer.....	1,360	38	78.3	+ 2.4	102	4†	54	13	40	0.00	- 0.02	0.00	0.0	0	31	0	0	w.
Azusa.....	Los Angeles.....	540	7	73.0	- 1.1	109	29	46	3†	47	0.00	- 0.09	0.00	0.0	0				
Bakersfield.....	San Bernardino.....	404	20	88.8	+ 1.2	106	4	66	23		0.00		0.00	0.0	0	23	0	8	
Barstow.....	Kern.....	2,105	6	83.6	+ 1.2	106	4†	54	13	46	0.50	+ 0.38	0.15	0.0	6	25	0	6	w.
Beckwith.....	San Bernardino.....	5,005	1	63.0		99	17	24	23	64	0.03		0.03	0.0	1	27	4	0	sw.
Berkeley.....	Alameda.....	317	22	61.4	+ 0.5	80	17	51	5	26	0.00	- 0.07	0.00	0.0	0	10	18	3	sw.
Biggs**.....	Butte.....	98	10	76.8	+ 2.8	100	5	56	11		0.00	- 0.02	0.00	0.0	0	31	0	0	s.
Bishop.....	Inyo.....	4,450	14																Do.
Blackburn.....	Humboldt.....	1,700	3	67.2		98	17†	40	23	55	T.		T.	0.0	0	29	2	0	nw.
Blue Canon.....	Placer.....	4,695	10	86.6	+ 1.9	86	20†	42	23	35	0.00	- 0.16	0.00	0.0	0	29	0	2	n.
Blythe.....	Riverside.....			86.7		112	11	49	14	47	1.63		0.51	0.0	6	18	0	13	sw.
Brandsburg.....	Mendocino.....	2,000	9	63.8	- 2.0	95	25	39	10†	44	0.00	- 0.02	0.00	0.0	0	31	0	0	n.
Brawley.....	Imperial.....	-105		89.6		111	11	72	2	35	1.43		0.91	0.0	4	18	7	6	sw.
Brush Creek.....	Butte.....	2,140	5	69.8	- 1.2	98	3†	40	23	54	0.00	- 0.01	0.00	0.0	0	31	0	0	s.
Calistoga.....	Imperial.....	0	4	89.8		112	11	69	2	37	3.64		2.50	0.0	5	18	3	10	se.
Caliente**.....	Kern.....	1,290	33																Agent, So. Pac. Co.
Calistoga**.....	Napa.....	363	37	66.3	- 4.0	98	25	50	8†		0.00	- 0.01	0.00	0.0	0	31	0	0	Do.
Campbell.....	Santa Clara.....	217	12	63.8	- 0.3	93	26	40	24	50	0.00	0.00	0.00	0.0	0	27	4	0	nw.
Camptonville (near).....	Yuba.....	3,500	2	77.4		104	18†	46	23	46	0.00		0.00	0.0	0	31	0	0	
Cedarville.....	Modoc.....	4,675	15	68.0	+ 0.1	106	19	40	28	63	0.61	+ 0.35	0.59	0.0	2	28	0	3	sw.
Chico.....	Butte.....	189	39	75.8	- 5.7	104	18	48	11†	51	0.00	- 0.03	0.00	0.0	0	31	0	0	s.
Chino**.....	San Bernardino.....	714	17	84.9	+ 9.7	105	15	65	2		0.81	+ 0.81	0.55	0.0	2	24	6	1	w.
Cisco.....	Placer.....	5,939	38	63.9	+ 2.1	80	2†	45	11†		0.00	- 0.02	0.00	0.0	0	31	0	0	Do.
Claremont.....	Los Angeles.....	1,200	17	78.0	+ 7.4	112	29	49	2	41	0.21	+ 0.16	0.16	0.0	2	26	2	3	w.
Cloverdale.....	Sonoma.....	340	7	69.8	- 1.1	102	26	40	11	49	0.00	- 0.01	0.00	0.0	0	31	0	0	s.
Colfax.....	Placer.....	2,421	38	72.4	- 4.1	95	10	50	12†	40	0.00	- 0.02	0.00	0.0	0	31	0	0	s.
Colusa.....	Colusa.....	60	6	73.2	- 1.9	97	17	51	13†	40	0.00	0.00	0.00	0.0	0				
Corning**.....	Tehama.....	277	23	87.0	+ 5.9	98	18†	70	13†		0.00	- 0.03	0.00	0.0	0	29	2	0	s.
Cuyamaca (I).....	San Diego.....	4,677	10	72.0	+ 7.5	88	12	52	31	30	1.30	+ 1.23	0.61	0.0	5	17	8	6	e.
Daunt.....	Tulare.....	4,000	2	72.8		100	29	48	14	43	0.17		0.17	0.0	1	25	5	1	
Davisville.....	Yolo.....	51	37	70.5	- 3.6	102	4†	42	23	54	0.00	- 0.00	0.00	0.0	0	28	3	0	sw.
Deer Creek.....	Nevada.....	3,700	2	65.7		91	29	34	23	46	0.00		0.00	0.0	0	28	3	0	
Delta.....	Shasta.....	1,138	24	76.2	- 0.1	103	18†	49	12†	48	T.	- 0.01	T.	0.0	0	28	2	1	s.
Denair.....	Stanislaus.....	126	9	74.4	- 2.0	104	4	47	11†	48	0.00	0.00	0.00	0.0	0	28	2	1	nw.
Dobbins.....	Yuba.....	1,650	5	77.8	- 2.4	102	17	52	23	40	0.00	- 0.01	0.00	0.0	0	31	0	0	
Dudleys.....	Mariposa.....	3,000		66.2		93	26†	36	13†	49	0.00		0.00	0.0	0	26	5	0	nw.
Dunnigan**.....	Yolo.....	65	32	83.6	+ 3.9	102	4	65	31		0.00	- 0.02	0.00	0.0	0	29	0	2	w.
Dunsmuir**.....	Siskiyou.....	2,285	20	73.3	+ 6.4	101	18	50	14		0.00	- 0.10	0.00	0.0	0	31	0	0	n.
Durham.....	Butte.....	160	14	75.4	- 0.3	104	4	48	13	46	T.	- 0.03	T.	0.0	0	29	2	0	s.
El Cajon.....	San Diego.....	482	10	75.2	+ 4.2	108	29	50	25	43	0.15	+ 0.04	0.05	0.0	5	26	5	0	sw.
Electra.....	Amador.....	725	5	80.3		110	4	50	22	45	0.00	0.00	0.00	0.0	0	29	1	1	
Elinore.....	Riverside.....	1,234	14	79.0	+ 1.9	108	29	46	2	53	0.55	+ 0.50	0.32	0.0	2	25	3	3	w.
Emigrant Gap.....	Placer.....	5,230	35	68.2	+ 2.3	92	21	49	5	38	0.00	- 0.04	0.00	0.0	0	30	1	0	
Econdido.....	San Diego.....	657	15	74.7	+ 2.6	113	29	48	10†	48	0.22	+ 0.22	0.18	0.0	2	12	19	0	w.
Eureka.....	Humboldt.....	64	23	54.8	- 1.0	69	14	46	22	16	T.	- 0.14	T.	0.0	0	7	14	10	n.
Farmington**.....	San Joaquin.....	111	30	81.7	+ 5.5	104	4	57	10†		0.00	0.00	0.00	0.0	0	31	0	0	nw.
Folsom.....	Sacramento.....	252	37	77.4	- 2.0	105	26	51	12	45	0.00	- 0.03	0.00	0.0	0	29	1	1	s.
Fordey Dam.....	Nevada.....	6,500	14	60.6		82	19	42	1†	35	0.00	- 0.38	0.00	0.0	0	30	1	0	sw.
Fouts Springs.....	Colusa.....	1,650	5	70.1		95	30	43	11†	43	0.52	+ 0.52	0.52	0.0	1				
Fresno.....	Fresno.....	293	22	80.7	- 0.5	106	4	52	23	43	0.00	0.00	0.00	0.0	0	30	1	0	w.
Fruto**.....	Glenn.....	624	20	79.0	- 1.6	100	3†	60	11†		0.00	- 0.05	0.00	0.0	0	30	0	1	s.
Galt**.....	Sacramento.....	49	31	71.4	- 6.0	93	11	55	18		0.00	- 0.01	0.00	0.0	0	31	0	0	w.
Georgetown.....	El Dorado.....	2,650	36																Do.
Gilroy**.....	Santa Clara.....	193	35	70.6	+ 2.7	100	24	52	6†	30	0.00	- 0.04	0.00	0.0	0	31	0	0	w.
Gold Run.....	Placer.....	3,222	10	76.8	+ 4.2	96	28†	57	2		0.00	- 0.02	0.00	0.0	0	30	0	1	
Gonzales**.....	Monterey.....	127	10	56.3	- 5.0	87	17	40	7†		0.00	0.00	0.00	0.0	0	31	0	0	n.
Grass Valley.....	Nevada.....	2,690	37	71.8		93	4†	45	23	36	0.00	- 0.02	0.00	0.0	0	31	0	0	sw.
Greenville.....	Plumas.....	3,600	15	64.1	+ 0.6	101	19	30	23	62									



TABLE 1.—Climatological data for August, 1909. District No. 11—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.				
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		Prevailing wind direction.			
California—Cont'd.																						
Los Banos	Merced	121	22	76.8	- 2.5	100	4	57	31	0.00	- 0.00	0.00	0.0	0	27	0	4	w.	Agent, So. Pac. Co.			
Los Gatos	Santa Clara	600	22	67.5	+ 0.3	96	25	46	57	45	0.00	- 0.05	0.00	0.0	0	31	0	0	nw.	F. H. McCullagh.		
Maedoe	Siskiyou	4,258	2	61.2		95	18	31	22	0.63		0.58	0.0	2	29	2	0	nw.	Robert Miller.			
Madeline	Lassen	5,270		61.6		98	18	26	12	0.40		0.40	0.0	1	28	3	0	nw.	J. H. Williams.			
Magalia	Butte	2,321	5	71.5	- 1.7	97	19	43	23	0.00	- 0.02	0.00	0.0	0	30	1	0	n.	Agent, Butte R. R. Co.			
Mammoth Tank	Imperial	257	31	92.0	+ 4.8	114	11	62	26	39	+ 5.17	2.00	0.0	3	12	0	19	e.	Agent, So. Pac. Co.			
Marysville	Yuba	67	38	82.2	+ 3.3	101	17	60	12	34	0.00	0.00	0.0	0	31	0	0	se.	Do.			
Mecca	Riverside	-185	3	89.6		111	11	68	2	37	1.57		0.75	0.0	3	26	3	2	nw.	A. Lunsted.		
Menlo Park	San Mateo	64	31	67.6	+ 0.9	92	25	50	14	0.00	- 0.04	0.00	0.0	0	29	0	2	nw.	Agent, So. Pac. Co.			
Merced	Merced	173	35	74.2		103	5	47	6	0.00		0.00	0.0	0	30	1	0	w.	Agent, Santa Fe R. R.			
Mill Creek (1)	Amador		2	75.8		92	26	42	23	38			0.00	0.0	0	30	1	0	nw.	Cal. Gas P. Electric Co.		
Milton (near)	Calaveras	660	19	77.4	+ 0.9	102	4	52	10	37		- 0.01	0.00	0.0	0	30	1	0	w.	J. H. Southwick.		
Modesto	Stanislaus	90	37	78.4	- 1.3	102	26	54	31	0.00		0.00	0.0	0	30	0	1	nw.	Agent, So. Pac. Co.			
Mojave	Kern	2,751	32	75.0	- 9.2	103	4	48	23	50	+ 0.08	0.06	0.0	2	27	0	4		Do.			
Mokelumne Hill	Calaveras	1,550	16	76.2	+ 3.6	97	4	50	23	0.00	- 0.02	0.00	0.0	0	31	0	0	w.	C. E. Prindle.			
Mono Ranch	Ventura	3,210	55	68.6		95	29	42	14	46	0.00	0.08	0.00	0.0	0	28	3	0	n.	H. Lathrop.		
Montague	Siskiyou	2,450	21	70.6	- 7.1	104	18	40	20	58	0.08	- 0.07	0.08	0.0	1	26	2	3	w.	G. H. Chambers.		
Monterey	Monterey	15	44	60.2	- 1.7	78	17	52	5	0.00	- 0.03	0.00	0.0	0	31	0	0	n.	Agent, So. Pac. Co.			
Monterey	Kern	4,500	10	79.2	+ 5.1	100	5	58	12	38	0.15	0.00	0.15	0.0	1	22	7	2	nw.	John C. Knecht.		
Monumental	Del Norte		4	64.5		93	18	38	14	45	T.		T.	0.0	0	29	0	2		G. F. Morgan.		
Mount Tamalpais	Marin	2,375	10	70.4		88	18	45	31	31	0.00		0.00	0.0	0	31	0	0	nw.	U. S. Weather Bureau.		
Napa (1)	Napa	20	32	63.6	- 1.4	97	16	43	11	51		- 0.03	0.00	0.0	0	31	0	0	sw.	Thomas Hull.		
Napa (2)	do.	60	31	65.6	+ 0.6	97	25	46	11	48		- 0.03	0.00	0.0	0	21	8	2	sw.	W. H. Martin. (S. H.)		
Needles	San Bernardino	477	17	87.4	+ 4.9	106	4	63	18	40	7.21	+ 6.99	1.95	0.0	5	21	2	8	sw.	Agent, Santa Fe R. R.		
Nevada City	Nevada	2,580	17	69.8	+ 2.8	98	4	37	23	52	T.	- 0.05	T.	0.0	0	27	4	0	sw.	S. W. Marsh.		
Newcastle	Placer	970	16	73.8		96	25	60	11		0.00		0.00	0.0	0					George D. Kellogg.		
Newhall	Los Angeles	1,200	32	80.7	+ 3.4	109	29	65	30	0.45	+ 0.42	0.45	0.0	1	28	0	3			Agent, So. Pac. Co.		
Newman	Stanislaus	91	20	76.5	- 5.3	101	3	48	12	48		- 0.01	0.00	0.0	0	31	0	0	n.	E. S. Wangerheim.		
Nimshew	Butte	2,500	5	71.2		95	18	43	23	44	0.00		0.00	0.0	0	31	0	0			Cal. Gas & Electric Co.	
North Bloomfield	Nevada	3,200	12																		W. G. Shand.	
North Fork	Madera	3,000	5	68.7		101	4	40	27		0.00		0.00	0.0	0						C. H. Shinn.	
Oakdale	Stanislaus	156	15	77.6	+ 1.3	103	4	53	13		- 0.02	0.00	0.0	0	30	1	0	nw.			Agent, So. Pac. Co.	
Oakland	Alameda	36	33	61.8	+ 0.5	80	16	50	16	30	0.00	- 0.03	0.00	0.0	0	8	18	5	w.			Chabot Observatory.
Ojai Valley	Ventura	900	3	73.2		108	29	40	25	53	0.00		0.00	0.0	0	29	2	0	w.			W. H. Duncan.
Orland	Glenn	254	27	78.0	- 6.2	105	18	51	21	44	T.	- 0.02	T.	0.0	0	29	2	0	se.			W. W. Patch.
Orleans	Humboldt	520	6	78.1	- 0.4	110	18	47	23	53	0.00	- 0.36	0.00	0.0	0	29	1	1	s.			Fred T. Hale.
Oroville (near)	Butte	250	25	77.8	- 1.5	106	17	52	13	47	0.00	- 0.02	0.00	0.0	0	28	2	1	s.			E. D. Fairchild.
Palermo	do.	213	18	75.6	- 1.5	104	18	47	14	48	T.	- 0.06	T.	0.0	0	27	4	0	s.			Miss Hettie Benit.
Palm Springs	Riverside	584	20	91.6	- 1.6	110	31	78	30		1.23	+ 1.04	1.08	0.0	2	15	0	16	sw.			Agent, So. Pac. Co.
Pasadena	Los Angeles	827	19	73.9	+ 0.4	106	29	47	28	52	0.06	+ 0.04	0.06	0.0	1	26	1	4	sw.			E. R. Sorver.
Paso Robles	San Luis Obispo	800	22	69.6	- 1.5	106	5	38	11	60	0.00	- 0.12	0.00	0.0	0	21	10	0	nw.			Dr. F. W. Sawyer.
Peachland	Sonoma	190	13	63.6	+ 0.3	98	4	40	12	52	0.00	- 0.05	0.00	0.0	0	28	3	0	s.			E. H. Parnell.
Penstock Camp	Tuolumne	3,750	2	76.6		95	3	56	25	39	0.00		0.00	0.0	0	17	14	0	se.			Tuolumne W. P. Co.
Pine Crest	Santa Barbara	1,000	11	71.1		104	29	43	2		0.00		0.00	0.0								Dr. C. M. Richter.
Placerville	El Dorado	1,875	20	68.6	- 1.2	91	26	41	23	40	0.00	- 0.02	0.00	0.0	0	29	2	0	w.			A. Baring-Gould.
Point Lobos	San Francisco	250	16	56.5	- 0.5	78	16	48	9	26	0.00	- 0.06	0.00	0.0	0	6	16	9	sw.			John Hyslop.
Point Reyes	Marin	490	17	52.9		69	17	47	30	18	0.00		0.00	0.0	0	11	8	12	nw.			U. S. Weather Bureau.
Porterville	Tulare	464	20	79.9	- 4.9	105	4	54	13	43	0.00	- 0.01	0.00	0.0	0	27	4	0	w.			Harry E. Cowie.
Poway	San Diego	460	25	74.7	+ 5.1	108	29	52	10	43	0.28	+ 0.26	0.28	0.0	1	23	5	3	sw.			Adams Chapin.
Quincy	Plumas	3,400	14	62.4	+ 1.2	94	18	29	23	59	T.	- 0.17	T.	0.0	0	30	1	0	w.			L. A. Barrett.
Red Bluff	Shasta	307	32	79.2	- 1.8	102	18	55	23	38	0.00	- 0.02	0.00	0.0	0	31	0	0	se.			U. S. Weather Bureau.
Redding	Shasta	552	34	79.1	- 1.9	100	18	55	22	35	T.	- 0.09	T.	0.0	0	31	0	0	n.			L. F. Bassett.
Redlands	San Bernardino	1,352	16	79.0	+ 1.5	103	29	50	1	50	0.19	- 0.33	0.12	0.0	3	21	6	4	w.			Paul W. Moore.
Reedley	Fresno	347	9	79.4	- 0.6	107	4	52	14	45	0.00	0.00	0.00	0.0	0	30	1	0	n.			Agent, Santa Fe R. R.
Rialto (near)	San Bernardino	2,250	3	78.2		101	28	54	1	33	1.44		1.30	0.0	4	19	8	4	sw.			Edison Electric Co.
Riverside	Riverside	851	27	75.3	- 1.1	107	29	51	8	45	1.23	+ 1.05	1.20	0.0	2	24	4	3	w.			C. W. Barton.
Rocklin	Placer	249	38	74.4	- 3.8	100	26	49	23	46	0.00	- 0.04	0.00	0.0	0	31	0	0	s.			Agent, So. Pac. Co.
Rohnerville	Humboldt	75	6	58.0		74	25	41	5	30	T.		T.	0.0	0	19	8	4	n.			Dr. R. Calhoun.
Sacramento (1)	Sacramento	71	32	71.8	- 0.3	99	25	50	10	39	0.00	- 0.00	0.00	0.0	0	30	1	0	s.			U. S. Weather Bureau.
Sacramento (2)	do.	35	56	69.0	- 3.6	92	4	50	10	37	0.00	- 0.01	0.00	0.0	0	28	3	0	s.			S. H. Gerrish.
St. Helena	Napa	255	1	69.0		102	4	42	11	58	0.00		0.00	0.0	0							B. F. Kettlewell.
Salinas	Monterey	40	35	59.7	- 1.9	83	17	44	25	34	0.00	- 0.02										

TABLE 1.—Climatological data for August, 1909. District No. 11—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
California—Cont'd.																				
Tracy**	San Joaquin	64	29	78.6	+ 1.1	99	23	59	7†	0.00	- 0.01	0.00	0.0	0	31	0	0	nw.	Agent, So. Pac. Co.	
Tulare (near)	Tulare	274	15	76.8	- 3.3	100	4†	54	14†	0.00	- 0.01	0.00	0.0	0	29	2	0	w.	J. T. Bearss.	
Ukiah	Mendocino	620	16	71.5	- 0.3	105	17†	40	11	57	0.00	- 0.01	0.00	0.0	0	27	4	0	nw.	Dr. George McCowen.
Upland	San Bernardino	1,750	12	76.4	+ 3.4	106	29	48	2	41	0.02	+ 0.01	0.02	0.0	1	25	5	1	w.	A. P. Harwood.
Upper Lake	Lake	1,350	24	73.6	+ 0.4	101	19	47	23	47	0.00	- 0.06	0.00	0.0	0	31	0	0	nw.	C. M. Hammond.
Vacaville	Solano	175	21	72.8	- 2.4	101	4†	45	16	55	0.00	- 0.04	0.00	0.0	0	30	1	0	sw.	G. O. Coburn.
Valley Springs**	Calaveras	673	20	78.6		102	4	62	13		0.00		0.00	0.0	0					Agent, So. Pac. Co.
Visalia	Tulare	334	21	79.9	+ 1.1	98	2†	64	18†	31	0.00	- 0.01	0.00	0.0	0	31	0	0	nw.	Agent, Santa Fe R. R.
Warner Springs	San Diego	3,165	1	74.0		95	4	46	1	39	3.25		1.67	0.0	8					Mrs. F. S. Stanford.
Wasco	Kern	336	9	75.4	- 5.5	109	22	50	31	52	0.00	- 0.02	0.00	0.0	0	28	0	3		Agent, Santa Fe R. R.
Watsonville	Santa Cruz	23	13	55.0	- 7.8	79	14	40	24	34	0.00	0.00	0.00	0.0	0	7	23	1	w.	Spreckles Sugar Co.
Westley**	Stanislaus	90	20	83.1	+ 3.5	101	4	60	23†		0.00	0.00	0.00	0.0	0	31	0	0	n.	Agent, So. Pac. Co.
Wheatland	Yuba	84	22	73.9	- 1.6	98	4	52	23	40	0.00	- 0.04	0.00	0.0	0	29	2	0	s.	Wm. Lumbard.
Willows	Glenn	136	30	74.1	- 7.5	98	4	50	22	41	T.	- 0.04	T.	0.0	0	28	1	2	s.	M. T. Harrington, jr.
Yosemite	Mariposa	3,945	5	68.8		99	25	40	1†	56	T.		T.	0.0	0	26	1	4	sw.	C. W. Tucker.

- \* Precipitation included in that of the next measurement.  
 \*\* Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.  
 † Also on other dates.  
 ‡ Data are from standard instruments not supplied by the U. S. Weather Bureau.  
 § Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.  
 || Estimated by observer.  
 ¶ Precipitation for the 24 hours ending on the morning when it is measured.  
 T. Precipitation is less than 0.01 inch rain or melted snow.  
 \*, †, ‡, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.



TABLE 2.—Daily precipitation for August, 1909. District No. 11, California.

[illegible]

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TABLE 2.—Daily precipitation for August, 1909. District No. 11—Continued.

[illegible]



[illegible]

TABLE 3.—Maximum and minimum temperatures at selected stations for August, 1909. District No. 11, California.

Date.	Lakeview, Oreg.		California.																											
			Altus.		Barstow.		Branscomb.		Brawley.		Colusa.		Eureka.		Fresno.		Independence.		Los Angeles.		Mount Tamalpais.		Nevada City.		Porterville.		Red Bluff.			
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
1...	87	37	85	42	99	65	86	45	108	74	86	55	61	54	94	60	88	57	75	55	72	56	88	48	93	58	91	63		
2...	92	47	90	39	103	60	88	48	103	72	93	56	59	52	98	62	93	56	76	56	81	65	94	45	96	58	99	64		
3...	89	43	93	40	104	60	94	53	107	76	96	61	59	52	103	64	94	55	76	57	85	72	97	46	102	61	101	67		
4...	90	41	106	68	88	51	106	81	96	67	58	49	54	55	106	67	95	59	78	56	82	69	98	48	105	62	99	70		
5...	88	42	89	39	106	72	80	50	99	76	95	58	58	47	104	70	95	60	83	57	78	69	94	49	104	66	97	66		
6...	88	44	86	38	101	69	76	47	100	72	90	57	56	50	99	63	90	61	81	59	71	65	92	43	100	64	90	64		
7...	89	47	87	37	101	67	77	48	104	76	87	52	58	52	96	64	89	56	80	58	74	60	91	45	95	64	92	62		
8...	91	43	89	41	104	62	88	44	104	76	89	54	56	50	98	63	90	60	80	58	76	63	90	47	98	58	94	60		
9...	89	42	90	36	99	63	80	40	105	78	89	54	55	50	99	60	90	56	77	56	74	60	92	49	98	61	93	60		
10...	89	41	90	39	102	60	76	39	107	78	89	53	57	50	97	60	90	55	77	56	67	59	91	47	97	57	92	60		
11...	87	43	88	37	100	62	72	39	111	76	84	52	57	52	92	58	92	56	82	60	69	49	90	44	91	55	91	58		
12...	86	40	86	32	101	62	72	40	105	76	83	52	59	52	92	55	92	57	78	58	65	46	91	43	92	55	89	58		
13...	87	42	91	34	100	54	75	43	102	82	85	51	60	54	94	53	92	53	73	55	69	57	87	42	93	54	90	56		
14...	91	41	85	33	104	64	78	43	99	82	86	52	69	54	95	57	95	52	75	55	73	54	92	42	96	55	91	60		
15...	89	39	86	33	101	73	70	42	98	79	89	55	58	52	97	54	92	60	86	64	76	59	90	42	95	57	93	63		
16...	93	47	94	35	97	72	79	49	83	72	94	56	58	48	99	61	93	59	90	68	86	68	94	42	99	58	99	62		
17...	95	53	99	35	97	69	90	53	93	73	97	58	59	50	102	66	92	65	85	67	86	74	97	47	100	64	101	65		
18...	95	52	100	41	98	70	81	46	97	76	96	64	60	50	95	73	88	63	84	65	88	70	95	51	98	68	102	68		
19...	89	50	100	46	102	70	78	44	102	77	95	60	56	50	102	70	92	62	87	61	81	69	96	53	101	67	101	70		
20...	85	37	95	46	103	69	74	40	105	76	89	62	61	52	103	72	92	65	80	61	80	65	97	59	104	71	92	68		
21...	87	38	95	36	104	69	72	39	107	77	87	56	58	50	100	68	92	63	81	60	76	62	94	46	100	65	92	62		
22...	85	36	87	31	102	68	80	46	109	79	83	51	62	46	95	64	92	59	81	57	66	52	92	42	98	61	86	58		
23...	85	34	80	36	103	67	84	47	104	76	86	51	59	49	89	52	92	58	86	60	74	54	86	37	88	55	92	55		
24...	83	35	90	30	102	62	93	50	101	77	90	55	58	49	97	56	92	62	77	55	83	70	90	42	96	55	94	63		
25...	84	38	95	37	104	62	95	52	103	79	94	57	61	49	102	63	94	56	73	52	87	78	96	45	100	57	100	66		
26...	90	40	91	39	104	65	94	54	101	77	95	55	60	50	104	66	94	61	78	55	86	72	97	47	102	63	101	68		
27...	91	42	89	49	104	65	92	50	108	78	96	62	60	47	104	67	95	61	85	59	86	73	97	47	104	63	100	75		
28...	89	40	95	39	104	66	90	46	108	76	93	57	61	50	104	64	92	61	88	60	81	67	95	49	103	65	97	62		
29...	90	54	96	38	102	69	79	40	107	84	93	54	60	53	102	64	87	65	101	68	84	66	95	50	103	66	99	61		
30...	90	50	94	49	90	75	81	42	93	76	92	57	58	53	102	69	84	64	98	77	80	68	95	55	104	73	98	65		
31...	80	44	79	55	90	68	80	41	92	76	89	51	58	52	96	69	86	57	83	62	76	45	93	47	98	65	92	61		
Means	88.4	42.7	90.5	38.8	101.2	66.0	82.0	45.5	102.3	76.9	90.5	56.0	59.0	50.6	98.7	62.7	91.4	59.2	81.7	50.6	77.8	63.1	93.2	46.4	98.5	61.3	95.1	63.2		

Date.	California.																											
	Redlands.		Sacramento.		San Diego.		San Francisco.		San Jose.		San Luis Obispo.		Santa Barbara.		Santa Rosa.		Siason.		Stockton.		Summit.		Susanville.		Yosemite.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.	93	56	79	54	70	61	60	52	80	54	66	50	74	56	73	53			87	55	73	43	86	50	90	40		
2.	93	50	90	55	68	60	65	50	82	49	70	50	70	57	82	46			93	54	81	41	83	46	92	45		
3.	100	50	95	60	68	60	65	50	87	50	75	49	75	56	83	45			96	63	81	46	89	50	94	46		
4.	100	61	93	64	70	62	72	52	88	48	80	48	74	55	88	48			95	61	79	45	88	50	96	46		
5.	100	65	88	59	75	63	60	51	80	45	75	47	73	58	85	44			90	60	81	43	88	47	94	47		
6.	96	65	79	56	78	65	57	52	82	52	72	49	70	56	76	43			86	55	79	49	88	46	92	46		
7.	99	59	81	52	74	64	56	50	76	49	74	51	74	55	79	42			84	53	77	41	88	46	90	46		
8.	95	60	87	52	73	61	60	50	78	51	71	51	76	56	72	48			86	53	77	43	86	49	89	44		
9.	96	58	84	52	71	61	59	49	77	51	70	50	74	55	73	48			82	53	78	44	84	48	90	45		
10.	98	54	81	50	72	59	59	49	70	52	67	49	73	55	70	48			80	51	79	43	85	48	94	50		
11.	98	61	81	51	75	61	62	53	70	50	74	43	74	54	73	41			79	53	79	45	85	47	96	47		
12.	96	56	78	54	70	60	63	53	71	46	70	47	77	53	73	41			78	53	78	42	81	44	95	46		
13.	94	52	83	52	69	61	60	52	72	50	73	46	78	54	75	42			81	50	76	38	84	43	94	47		
14.	96	58	83	53	69	62	66	52	74	52	77	49	79	53	83	43			85	52	77	38	82	39	93	42		
15.	94	70	88	54	77	64	65	52	78	48	81	49	79	52	85	45			86	54	79	43	81	41	94	43		
16.	90	68	93	57	77	67	82	52	90	45	86	48	83	55	96	44			94	56	83	42	85	40	94	42		
17.	84	69	98	66	73	67	76	54	91	55	86	56	84	57	94	45			94	62	84	49	91	50	92	40		
18.	93	70	93	65	76	67	61	50	84	56	89	58	83	65	81	50	94		95	61	89	49	92	55	93	42		
19.	97	65	90	58	76	65	58	50	79	56	80	53	82	57	76	50			90	60	84	51	93	55	95	46		
20.	94	65	82	59	75	66	59	50	78	55	78	52	76	56	79	51			86	51	82	54	87	57	95	47		
21.	94	63	84	54	75	64	58	50	78	48	79	51	76	56	79	41			86	58	79	56	85	42	94	41		
22.	96	63	82	52	73	63	62	50	75	45	73	51	78	56	77	41			80	56	72	54	82	39	90	44		
23.	97	61	85	52	76	62	71	52	80	43	79	49	78	54	85	43	37		84	50	78	38	76	39	94	41		
24.	98	57	95	57	71	63	71	52	88	44	80	46	70	56	88	43			93	54	78	48	83	41	98	46		
25.	97	57	99	60	69	61	79	54	93	47	78	47	76	53	94	46			95	58	84	46	88	46	99	48		
26.	98	66	98	63	71	62	72	51	90	47	80	48	74	52	93	47			95	59	82	51	85	48	97	44		
27.	98	65	98	63	74	64	65	52	85	50	84	48	77	52	90	48			94	62	83	42	80	47	96	42		
28.	102	62	91	57	76	64	61	50	76	47	81	47	80	52	75	49			87	58	84	49	87	47	97	41		
29.	103	73	90	54	87	67	57	50	74	51	79	50	88	57	79	49			87	55	85	49	89	48	93	40		
30.	98	76	84	55	93	68	55	51	71	47	73	51	88	60	74	42			84	57	84	52	85	55	91	41		
31.	87	67	80	51	72	61	58	50	76	50	68	50	73	57	75	42			81	54	81	51	78	54	89	40		
Means.....	95.9	62.0	87.5	56.2	74.0	63.1	63.7	51.1	79.8	49.5	76.4	49.5	76.6	55.5	80.8	45.4	84.8	45.0	87.5	56.2	80.2	46.0	85.2	47.0	93.5	44.0		



Climatological Data for August, 1909.  
DISTRICT No. 12, COLUMBIA VALLEY.

EDWARD A. BEALS, District Editor.

TEMPERATURE.

The temperature averaged nearly 2° below normal in the Columbia River Basin in Washington and Oregon and about the same deficiency was experienced in the Puget Sound and coast drainage areas. Within the drainage basins of the principal tributaries of the Columbia River in Idaho, Montana, and Wyoming the temperature averaged slightly above normal, with the departures greatest in the southern and least in the northern portions of this territory. It was warmest in the bottom lands along the Columbia River from The Dalles, Oreg., east to Walla Walla, Wash., and very nearly as warm in the Snake River Valley from Huntington, Oreg., east to Pocatello, Idaho. In both of these regions the mean temperature was slightly above 70°. The coolest section of the district was along the coast and in the Puget Sound country where the mean temperature was 60° or slightly below that mark.

The only cool spell of the month culminated on the 27th or thereabout, at which time freezing temperatures occurred in the mountains, and frosts formed in many of the highland agricultural sections. The warmest period was from the 16th to the 20th, inclusive, and most of the stations reported their maximum temperatures as having occurred on some one of the dates within this period. The highest temperature in this district was 108°, on the 19th, at Troy, Mont., and the lowest was 18° on the 27th at Christmas Lake, Oreg.

PRECIPITATION.

But very few localities reported an excess in precipitation, and over a large area there was a marked deficiency. A small region centering about Pocatello, Idaho, experienced nearly four times as much rain as usual, most of which fell on the last two days of the month. Another and larger area with an excess of rain embraced the region covered by the windward slopes of the Olympic Mountains in northwestern Washington; over this area the excess amounted to nearly an inch. Heavy rains on the 25th and 26th in the northern part of Whatcom County, Washington, caused the precipitation in that locality to be 1.66 inches above the normal.

In all that portion of the Columbia River Valley beginning at the International Boundary and extending to the point where the river passes through the gorge in the Cascade Mountains either no rain fell or else the amount was so small as to be barely measurable and consequently of little benefit. Bor-

dering this region more rain fell, but the amount was far below normal and it is estimated that drouthy conditions prevailed during the greater part of the month in nine-tenths of the area covered by the district. The rainfall was poorly distributed and came in local showers at irregular intervals, and there were no days when the precipitation was general over a large area. The drought, although severe and widespread, did no material harm as the rains of the previous month had wet the soil to a good depth and there was sufficient moisture in the ground to mature the staple crops.

The greatest monthly rainfall was 4.26 inches at Clearwater, Wash., a station in the foothills of the Olympic Mountains, and the greatest twenty-four-hour fall was 2.80 inches at the same station on the 25th. At Rupert, Idaho, in the upper Snake River Valley, 0.47 of an inch of rain fell on the 22d in about twenty minutes, and so far as known the rate of fall during this downpour was the highest in the district. No snow fell at any of the reporting stations and there were no damaging hailstorms.

August was a quiet month in this district. There were no severe storms and there was scarcely any interruption to outdoor work on account of inclement weather. Freezing temperatures and frost occurred over a wide area on the mornings of the 27th and 28th which was unusually early in the season for such cold weather. In the low agricultural valleys where frost formed it was too light to be damaging and, in the higher agricultural sections where the frost was heavy, the season was so far advanced that the staple crops escaped injury. The principal streams fell steadily, but irrigation water held out well and there was a sufficient amount for all practical purposes.

It is believed that forest fires were not so numerous as usual, but by the third decade the smoke from them had destroyed the visibility of distant objects, and the atmosphere over a wide extent of territory had assumed a hazy appearance. There were but few thunderstorms in the Coast and Cascade mountains, and consequently not many trees were set on fire by lightning and this fact, combined with the enforcement of stringent laws compelling campers and others to extinguish their fires before leaving the grounds, operated to decrease the fire losses in the standing timber of the Columbia River drainage area. Also the work of controlling and putting out fires after they have started is conducted more efficiently than formerly.

## MONTHLY WEATHER REVIEW.

AUGUST, 1909

TABLE 1.—*Climatological data for August, 1909. District No. 12, Columbia Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Number of rainy days.		Sky.		Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
<b>Montana.</b>																			
Anaconda.	Deer Lodge.	5,300	8	63.0		90	14 <sup>†</sup>	31	28	44	0.62	0.28	0.0	6	22	6	3	C. D. Demond.	
Bison Mountain.	Powell.	7,240									0.95	0.72	0.0	2	23	8	0	C. H. Anderson.	
Columbia Falls.	Flathead.	3,100	15	60.9	- 1.5	96	14	27	28	56	0.10	0.10	0.0	1	23	6	12	Mrs. I. M. Kennedy.	
Como.	Ravalli.		2	62.2		90	10 <sup>†</sup>	33	28	43	0.19	0.10	0.0	4	26	3	12	Hiram Platte.	
Darby.	do.	3,825									0.13	0.05	0.0	3	19	9	3	W. A. Kerlee.	
Dayton.	Flathead.	2,800																Charles M. Lawson.	
East Anaconda.	Deer Lodge.	5,500	4	64.6		89	14	38	28	37	0.64	0.38	0.0	4	22	6	3	C. D. Demond.	
Fortine.	Flathead.	2,975	4															Mike Petery.	
Hamilton.	Ravalli.	3,575	7	66.4		91	10 <sup>†</sup>	36	28	42	0.17	0.12	0.0	2	21	6	4	J. B. Currie.	
Hat Creek.	Powell.	6,000									0.64	0.45	0.0	2	23	6	2	M. K. Landreth.	
Jocko.	Missoula.	3,100	1															George W. Robbins.	
Kalispell.	Flathead.	2,965	11	61.7	- 1.2	89	14	35	28	42	0.11	- 0.78	0.09	0.0	3	25	3	3	U. S. Weather Bureau.
Lost Creek.	Deer Lodge.	5,200																Frank Henault.	
Missoula.	Missoula.	3,225	26	65.8	+ 2.9	95	14	34	28	52	- 0.47	0.28	0.0	2	24	6	1	U. S. Weather Bureau.	
Ophir.	Powell.	8,800									1.12	0.36	0.0	2	24	6	1	E. S. Wilton.	
Ovando.	do.	4,207	11	66.0	- 2.8	87	20	26	28	50	- 0.36	0.25	0.0	3	29	1	0	S. B. Muchmore.	
Philipsburg.	do.	5,275	6	61.4		91	14	25	28	53	0.60	0.22	0.0	4	18	8	0	Prof. G. T. Bramble.	
Pipestone Pass.	Jefferson.	7,000									1.06	0.37	0.0	7	19	12	0	Mrs. Th. Kiermeyer.	
Plains.	Sanders.	2,475	11	64.4	+ 0.3	92	14	36	28	45	T.	- 0.88	T.	0.0	0	28	1	2	M. H. Pierce.
Pleasant Valley.	Flathead.	3,500	3	55.0		99	19	23	28	70	0.12	0.10	0.0	2	28	0	3	A. D. Stillman.	
Poleon.	do.	2,920	2	65.4		92	12	35	28	37	0.00	0.00	0.0	0				F. P. Brown.	
St. Ignace.	Missoula.	2,700	1	63.8 <sup>b</sup>		96	14	30 <sup>b</sup>	28	54 <sup>b</sup>	0.09	0.03	0.0	4	20	8	2	U. S. Reclamation Service.	
St. Regis.	do.	2,650		61.4		97	14	28	30	66	0.19	0.12	0.0	2	14	17	0	R. D. Lee.	
Salt Lake.	do.	3,600									0.30	0.30	0.0	1	30	0	1	E. K. Tarbox.	
Snowshoe.	Flathead.	4,500	3	58.5		84	14 <sup>†</sup>	35	6 <sup>†</sup>	38	0.82	0.72	0.0	3	27	3	1	J. S. Riter.	
Troy.	do.	1,880	15	64.2	+ 1.2	108	19	29	1 <sup>†</sup>	67	0.32	- 0.57	0.32	0.0	1	30	0	1	W. E. Milnor.
Upper Lake McDonald.	do.	3,200	3								0.20	0.10	0.0	2				F. F. Liebig.	
Woodville.	Jefferson.	6,376									0.74	0.33	0.0	6	18	12	1	Anna Kinman.	



TABLE 1.—Climatological data for August, 1909. District No. 12—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.	Prevailing wind direction.
Idaho—Cont'd.																				
Pocatello Nursery	Bannock	3	65.8	+ 0.4	91	181	29	28	58	1.84	+ 0.33	1.22	0.0	5	21	9	1	sw.	Peter F. Wrensted.	
Poplar	Bingham	2,425	10	66.8		92	20	32	29	56	1.24		0.45	0.0	7	15	15	1	sw.	Stuart Lee.
Poplars	Bonner	1,665	17	62.0	+ 2.0	90	141	36	28	44	T.	- 0.97	T.	0.0	0	29	1	1	sw.	N. S. Dils.
Porthill	Boise										0.04		0.04	0.0	1	24	1	0	sw.	H. A. French.
Pyle Creek	Lincoln	4,204	3	71.4	+ 2.7	97	1	36	28	52	0.82	+ 0.12	0.47	0.0	4	25	3	3	sw.	Walter L. Cole.
Rupert	Kootenai	2,263	13	61.8	- 2.8	95	19	31	28	51	0.36	- 0.82	0.14	0.0	1	25	2	4	sw.	Will Parry.
St. Maries	Fremont	5,000	4								0.36	- 0.27	0.17	0.0	4				sw.	J. S. Turnbull.
Salem	Lemhi	4,040	4	66.4	+ 2.6	94	141	31	28	55	0.68	- 0.22	0.34	0.0	5	23	7		nw.	Geo. H. A. Harris.
Salmon	Twin Falls	4,040	2	72.8	+ 2.2	96	20	40	28	42	0.78	+ 0.06	0.53	0.0	4	22	5	4	n.	E. K. Abbott.
Salmon River Dam	Boise	5,000									0.13		0.08	0.0	2				n.	Arch M. Gilbert.
Sheep Hill	Owyhee	6,200	3																n.	Clifford M. Gardner.
Shoshone	Lincoln	3,968									0.10		0.07	0.0	3				w.	O. A. Pettit.
Silver City	Blaine	5,140	13	64.9	+ 1.1	94	6	38	14	46	0.85	+ 0.44	0.50	0.0	3	24	6	1	w.	A. O. Treeman.
Soldier	Cassia	5	68.6			90	12	39	28	44	1.24		1.00	0.0	5	23	6	2	sw.	W. W. Leek.
Standrod	Fremont	2	64.4			89	18	34	28	51	0.75		0.41	0.0	5	22	7	2	sw.	T. B. Jones.
Sugar	Elmore		72.4			103	20	43	24	52	T.		T.	0.0	0	28	3	0	nw.	Geo. F. Webb.
Sunnyside	Bingham	4,420	4	68.8		96	141	30	28	53	1.10		0.60	0.0	3	18	11	2	sw.	E. A. Wilmut.
Tilden	Twin Falls	3,825	4	68.6		95	12	32	28	58	0.30		0.20	0.0	5	20	11	0	nw.	Mrs. W. A. Edwards.
Twin Falls	Fremont		12																nw.	Clyde C. Anderson.
Vernon	Shoshone	2,728	2	61.2		95	31	34	28	51	0.22		0.19	0.0	3				e.	A. M. Slatery.
Wallace	Blaine	6,386		60.2		87	19	31	24	48	0.41		0.31	0.0	2	28	2	1	sw.	U. S. Weather Bureau.
Warfield	Lincoln	3,400		73.6		103	20	37	28	58	0.13		0.13	0.0	1				w.	Wm. H. Warfield.
Wendell	Lincoln																		w.	Chas. L. Dingler.
Washington.																				
Aberdeen	Chehalis	162	18	58.6	- 2.7	86	28	40	5	34	1.26	+ 0.30	0.55	0.0	7	11	19	1	w.	C. Weatherwax.
Anacortes	Skagit	60	15					37	17		0.26	- 0.62	0.15	0.0	3	27	0	4	sw.	Douglass Allmond.
Baker	do.	200	3	62.4		92	28	40	5	41	0.85		0.49	0.0	4	17	4	10	sw.	Robt. M. White.
Bellingham	Whatcom.	60	14	60.4	- 0.2	85	151	38	28	47	0.98	- 0.05	0.61	0.0	4	23	4	4	sw.	Sanford B. Mayhew.
Blaine	do.	53	12	58.3	- 1.7	81	19	38	6	38	2.47	+ 1.66	1.42	0.0	7	17	10	4	w.	G. A. Ruring.
Bremerton	Kitsap										0.17	- 0.73	0.08	0.0	3				sw.	U. S. Navy Yard.
Cedar River	King	2									0.51		0.36	0.0	4	19	3	9	sw.	Geo. Landsburg.
Centralia	Lewis	212	16	62.0	- 2.1	89	7	35	5	50	0.20	- 0.56	0.15	0.0	2	21	5	5	w.	I. S. Turner.
Cheney	Spokane	2,351	10			99	19	31	24	48	0.00	- 0.77	0.00	0.0	0	31	0	0	sw.	G. A. Fellows.
Chopaka	Okanogan	1,200	1	66.6		98	191	34	28	56	0.03		0.03	0.0	1	13	9	9	nw.	Mrs. J. S. Myers.
Clearbrook	Whatcom.	140	6																sw.	Geo. Gibbs.
Clearwater	Jefferson	135	13	56.8	- 4.3	72	18	43	21	26	4.28	+ 2.44	2.80	0.0	12	22	6	3	sw.	Alfred Ritchie.
Clealum	Kittitas	1,930	10	61.0	- 1.2	97	18	28	28	57	0.06	- 0.33	0.06	0.0	1	27	4	0	sw.	J. A. Balmer.
Colfax	Whitman	2,300	20	61.8	- 3.7	97	19	31	6	54	0.00	- 0.61	0.00	0.0	0				sw.	W. H. James.
Colville	Stevens	1,635	9	63.8	- 2.4	99	19	31	28	59	T.	- 0.75	T.	0.0	0	20	10	1	sw.	W. L. Sax.
Conconully	Okanogan	2,300	9	64.0	- 0.5	92	181	35	5	48	T.	- 0.69	T.	0.0	0	23	7	1	s.	Wm. Baines.
Coupeville	Island	150	13																sw.	W. T. Howard.
Crescent	Lincoln	2,250	9	64.2	- 1.6	98	19	35	28	52	0.03	- 0.72	0.03	0.0	1	29	1	1	sw.	Otto Wollweber.
Davenport	do.	2,450		64.3		96	19	34	27	44	0.02		0.02	0.0	1	29	2	0	sw.	W. H. Reed.
Dayton	Columbia	1,700	23	67.8	- 0.6	96	19	40	28	42	0.18	- 0.32	0.18	0.0	1	27	3	1	sw.	W. W. Hendron.
Detroit	Mason	31	1	62.5		88	18	41	6	42	0.42		0.19	0.0	4	24	4	3	sw.	Walter O. Eckert.
Dixie	Walla Walla	5,000									0.20		0.20	0.0	1	25	3	3	sw.	T. Z. Andrews.
Duckabush	Jefferson	380	1	60.8		86	171	38	29	46	0.34		0.20	0.0	4	14	7	10	sw.	Emery J. Finch.
East Sound	San Juan	500	14																sw.	Benj. E. Harrison.
Ellensburg	Kittitas	1,571	21	64.8	- 0.9	96	18	33	28	53	0.00	- 0.25	0.00	0.0	0	30	1	0	nw.	R. Lee Barnes.
Ephrata	Grant	1,265	6																sw.	D. Chaffee.
Forks	Challam	480																	sw.	C. W. Palmer.
Fort Simcoe	Yakima	1,427	15	72.0	- 0.8	100	19	43	7	47	0.00	- 0.21	0.00	0.0	0	29	2	0	sw.	Dr. G. A. Landes.
Goat Lake	Snohomish	2,900									2.63		2.00	0.0	5				sw.	C. M. Mackintosh.
Gold Creek	Yakima	2,600									0.00		0.00	0.0	0	31	0	0	sw.	John W. Anderson.
Goldendale	Klickitat	1,600	3	66.0		99	18	38	5	50	0.00		0.00	0.0	0	24	7	0	sw.	Clickitat Abstract Co.
Granite Falls	Snohomish	397	6								0.96	- 0.55	0.70	0.0	4	20	5	6	nw.	C. H. Cleaver.
Hatton	Adams	1,100	4	68.6		106	19	38	161	54	0.00		0.00	0.0	0	26	4	1	sw.	Dr. A. V. Marion.
Huntsville	Columbia	1,400	1								0.04		0.04	0.0	1	30	1	0	sw.	Dr. B. Hill.
Irene Mount	Okanogan	3,015									0.03		0.02	0.0	2	21	9	1	s.	Mrs. E. W. Wheeler.
Kennewick	Benton	367	14	70.4	- 4.8	103	19	43	51	53	T.	- 0.22	T.	0.0	0	25	6	0	sw.	L. W. Soth.
Kettle Falls	Stevens	1,265		66.2		98	19	38	28	50	0.00		0.00	0.0	0	29	2	0	sw.	Dr. A. E. Baldwin.
Kiona	Benton	430	4	70.2		101	19	40	28	50	0.00		0.00	0.0	0	30	1	0	sw.	Dr. F. S. Hedger.
Kosmos	Lewis	775	3	61.6		93	18	36	16	55	0.14		0.10	0.0	2	6	25	0	sw.	Hon. J. A. Ush.
La Center	Clark	250	12	61.7	- 2.9	92	18	38	21	48	0.14	- 0.89	0.12	0.0	2	24	7	0	sw.	Joseph Brothers.
La Crosse	Whitman	1,400		66.8		104	19	34	16	56	0.04		0.04	0.0	1	29	0	2	sw.	M. E. Schreck.
Lake Clealum	Kittitas	2,171									T.		T.	0.0	0	14	10	7	nw.	U. S. Reclamation Service.
Lake Kachess	do.	2,235		60.0		93	18	31	28	47	0.16		0.16	0.0	1	21	9	1	sw.	Do.
Lake Kechelus	do.	2,479	1								0.36		0.28	0.0	2	17	3	11	sw.	Do.
Lakeside	Chelan	1,116	18	70.9	- 1.5	100	19	45	28	40	T.	- 0.38	T.	0.0	0	18	12	1	w.	W. H. Van Meter.
Laurel	Klickitat	1,900									0.00		0.00	0.0	0	26	5	0	w.	L. S. Strout.
Lester	King	1,614	5																	

TABLE 1.—Climatological data for August, 1909. District No. 12—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.
Washington—Cont'd.																		
Ritaville.	Adams.	1,825	10														Agent, No. Pac. Ry.	
Rock Lake.	Whitman.	1,750	3	66.6		100	19	34	27	44	0.00		0.00	0.0	0	27	0	P. M. Ramsey.
Rosalie.	do.	2,425	17	66.2	+ 1.1	97	19	41	61	42	0.08	- 0.65	0.08	0.0	1	28	2	Hans Mumm.
Russell's Ranch.	Yakima.	2,870												0.0	0	26	0	John Russell.
Seattle (1).	King.	123	18	61.6	- 1.5	79	7	51	16	28	0.27	- 0.22	0.22	0.0	4	12	11	U. S. Weather Bureau.
Seattle (2).	do.			61.6		83	18	45	14	30	0.39		0.16	0.0	5	22	3	Univ. of Washington.
Sedro-Wooley.	Skagit.	38	12	60.4	- 1.9	88	7	34	30	51	0.35	- 1.20	0.19	0.0	4	19	11	H. L. Devin.
Sixprong.	Klickitat.	1,240	2	71.4		102	19	41	16	47	T.			0.0	0	27	2	C. E. Comstock.
Skagit Power Dam.	Whatcom.			61.6		89	29	46	27	39	2.05		0.95	0.0	4	15	0	Skagit Power Co.
Snohomish.	Snohomish.	50	15	59.2	- 3.2	82	13	40	5	39	0.45	- 0.60	0.31	0.0	4	19	2	Irving B. Vestal.
Snoqualmie Falls.	King.	667	10	61.8	- 1.7	87	17	40	51	46	0.91	- 0.65	0.52	0.0	5	22	0	O. N. Wiswell.
Snyder's Ranch.	Okanogan.	2,200									0.05		0.05	0.0	1	23	6	George M. Snyder.
South Bend.	Pacific.	16	14														John L. Stevens.	
Spokane.	Spokane.	1,943	28	66.7	- 1.2	97	19	44	27	44	0.01	- 0.47	0.01	0.0	1	22	8	U. S. Weather Bureau.
Stehakin.	Chelan.	1,100	2														M. E. Field.	
Stokes Ranch.	Okanogan.	2,670															Amos Stokes.	
Sullivan Lake.	Stevens.	2,700															Mrs. Jennie D. McAbee.	
Sumner.	Pierce.	77	1	60.4		89	18	35	28	54			0.0	16	6	8	H. E. Thompson.	
Sunnyside.	Yakima.	740	14	66.2	- 3.9	100	19	38	27	51	0.00	- 0.18	0.00	0.0	0	28	3	U. S. Reclamation Service.
Tacoma.	Pierce.	213	23	61.6	- 1.4	79	18	47	16	29	0.33	- 0.37	0.18	0.0	4	16	11	U. S. Weather Bureau.
Tatoosh Island.	Clallam.	86	24	54.4	- 0.9	64	28	48	31	13	2.97	+ 0.86	1.66	0.0	14	8	9	Do.
Tieton.	Yakima.	2,000		67.0		96	19	42	27	46	T.		T.	0.0	0	28	1	U. S. Reclamation Service.
Touchet.	Walla Walla.	556	2	67.7		100	18	36	6	56	T.		T.	0.0	0	28	1	D. W. Dorrance.
Touchet Ridge.	Columbia.	2,500															R. H. King.	
Trinidad.	Douglas.	900	5	74.3		102	19	49	28	38	0.00		0.00	0.0	0	29	2	J. C. Wheeler.
Twisp.	Okanogan.	1,619	6	66.4		101	18	36	27	53	0.08		0.08	0.0	1	26	0	Wm. G. Hughes.
Tye.	Chelan.	2,000									0.06		0.06	0.0	1	17	12	Elias McCrea.
Vancouver.	Clarke.	100	34	65.0	- 1.0	92	18	41	21	41	0.07	- 0.53	0.05	0.0	2	20	7	A. A. Quarnberg.
Vashon Island.	King.	110	20	59.6	- 3.6	79	12	43	5	30	0.40	- 0.11	0.32	0.0	3	22	7	Miss Gertrude McClintock.
Wahluke.	Grant.	410	5	69.0		104	19	39	28	53	0.00		0.00	0.0	0	31	0	F. C. Koppen.
Wallace.	Okanogan.	4,000									T.		T.	0.0	0	9	21	Geo. A. Wallace.
Walla Walla.	Walla Walla.	1,000	25	71.8	- 2.0	99	19	48	28	39	0.01	- 0.44	0.01	0.0	1	27	2	U. S. Weather Bureau.
Waterville.	Douglas.	2,624	19														O. R. Hopewell.	
Wenatchee (near).	Chelan.	1,169	10	67.9	+ 0.4	95	19	46	27	31	T.	- 0.36	T.	0.0	0	25	5	George Pitcher.
West Branch.	Spokane.	2,600															Martin A. Murray.	
Wilbur.	Lincoln.	2,203	10			95		32	27								Rollin J. Reeves.	
Yale.	Cowlitz.	375	2	63.0		93	18	36	21	43	0.23		0.23	0.0	1	17	12	L. F. Williams.
Zindel.	Asotin.	715	7	75.5	- 3.0	107	19	51	29	42	T.	- 0.93	T.	0.0	0	11	15	M. W. Zindel.
Oregon.																		
Albany.	Linn.	214	33	63.5	- 2.6	95	28	40	25	47	0.30	- 0.21	0.22	0.0	3	21	3	F. M. French.
Ashland.	Jackson.	1,940	25	69.0	0.0	97	28	44	27	41	0.12	- 0.28	0.12	0.0	1	28	2	F. H. Carter.
Astoria.	Clatsop.	11	47														C. W. Lamar.	
Baker City.	Baker.	3,466	20	65.6	+ 0.7	97	19	38	27	45	0.01	- 0.38	0.01	0.0	1	22	9	U. S. Weather Bureau.
Bay City.	Tillamook.	14	13	58.2	- 0.9	84	28	34	7	40	0.55	- 0.89	0.27	0.0	5	24	2	J. O. Bozarth.
Birch Creek.	Wheeler.	2,900		69.1		100	19	42	27	45	0.00		0.00	0.0	0	29	2	F. S. Matteson.
Black Butte.	Lane.	1,200	8	60.6	- 4.7	88	28	37	4	44	0.18	- 0.02	0.08	0.0	3	26	5	James A. Putman.
Blalock.	Gilliam.	237	10	75.2	- 0.7	103	19	51	5	40	0.00	- 0.13	0.00	0.0	0	29	1	Geo. W. Long.
Buckhorn Farm.	Josephine.	1,300	10	66.8	- 0.1	101	18	37	24	56	T.	- 0.45	T.	0.0	0	27	0	E. F. Meiser.
Cascade Locks.	Hood River.	100	18	64.4	- 3.6	87	18	44	27	37	0.58	- 0.24	0.31	0.0	3	29	2	Val W. Tomkins.
Cazadero.	Clackamas.	514		63.9		92	18	42	5	42	1.03		0.55	0.0	3	25	5	A. Drill.
Condor.	Gilliam.	2,884	1	62.8		90	19	35	27	44	0.00		0.00	0.0	0	31	0	C. H. Williams.
Corvallis.	Benton.	600	7	62.9	- 2.4	94	28	41	5	45	0.11	- 0.29	0.08	0.0	2	26	3	Oregon Agric. College.
Dayville.	Grant.	1,500	14	67.1	- 0.3	101	19	33	28	60	0.00	- 0.39	0.00	0.0	0	31	0	Dr. J. Campbell-Martin.
Doraville.	Columbia.	600	7	60.6	- 1.8	86	18	41	21	40	0.31	- 0.62	0.20	0.0	4	13	12	Jos. Hackenberg.
Drain.	Douglas.	300	6	64.2	- 1.1	95	18	37	16	52	0.07	- 0.37	0.05	0.0	2	21	7	Ira Wimberly.
Echo.	Umatilla.	625	5	71.6		101	19	40	28	47	0.00		0.00	0.0	0	28	1	R. B. Stanfield.
Ella.	Morrow.		10	71.8		103	19	40	28	45	0.00	- 0.30	0.00	0.0	0	30	1	C. F. Troedson.
Eugene.	Lane.	449	18	64.2	- 0.7	92	28	41	27	47	0.00	- 0.66	0.00	0.0	0	24	6	A. W. Jackson.
Fairview.	Cos.	142	11	57.6	- 4.1	85	17	38	22	43	0.61	+ 0.04	0.50	0.0	2	29	0	Wm. Bettys.
Fall City.	Polk.	355	11	61.4	- 1.6	95	18	37	5	48	T.	- 0.60	T.	0.0	0	24	4	Chas. F. Vick.
Forest Grove.	Washington.	220	19														Pacific University.	
Gardiner.	Douglas.	72	19	60.2	- 0.9	82	25	44	22	35	0.60	- 0.24	0.34	0.0	4	23	5	Hon. J. S. Gray.
Glendale.	do.	1,441	5	66.2		101	18	37	15	57	0.00	- 0.32	0.00	0.0	0	28	3	B. J. Simpson.
Glenora.	Tillamook.	575	17	60.1	- 3.2	94	18	35	5	49	0.60	- 0.54	0.32	0.0	3	22	5	Mrs. Jennie Recher.
Gold Beach.	Curry.	40	6	56.6	- 1.5	74	27	40	22	30	0.25	- 0.01	0.25	0.0	1	28	0	C. Dewey.
Granite.	Grant.	4,680	4	57.6		93	29	24	28	60	T.	- 0.24	T.	0.0	0	21	10	L. M. Ford.
Grants Pass.	Josephine.	956	20	67.6	- 1.0	104	18	39	6	58	T.	- 0.33	T.	0.0	0	26	2	John B. Paddock.
Grass Valley.	Sherman.	2,381	7	56.1	- 6.9	79	12	32	24	35	0.02	- 0.25	0.02	0.0	1	10	7	Agent, O. Ry. & N. Co.
Greenleaf.	Lane.		9	61.1	- 1.5	91	18	37	22	49	0.15	- 0.53	0.10	0.0	3	23	4	Wm. Wheeler.
Headworks.	Clackamas.	719	10	61.2	- 1.2	87	18	41	5	41	1.05	- 0.88	0.47	0.0	5	21	7	Portland Water Works.
Heppner.	Morrow.	1,950	20	66.0	- 2.2	98	18	38	28	46	0.00	- 0.29	0.00	0.0	0	22	8	Geo. Whiteis.
Hermiston.	Umatilla.	450	4	70.1		102	19	38	28	53	0.00	- 0.42	0.00	0.0	0	27	4	C. W. Kellogg.
Hood River.	Hood River.	243	18	64.4	- 2.3	101	17	38	28	49	T.	- 0.24	T.	0.0	0	27	0	H. L. Hasbrouck.
Huntington.	Baker.	2,110	7	78.1	0.0	101	19	55	6	41	0.00	- 0.26	0.00	0.0	0			



TABLE 1.—Climatological data for August, 1909. District No. 12—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Oregon—Cont'd.																				
Siskiyou.....	Jackson.....	4,115	1	63.5	.....	92	18	39	23†	43	0.44	.....	0.44	0.0	1	26	5	0	e.	Louise F. Bates.
Stafford.....	Clackamas.....	13	13	64.7	- 1.9	97	28	39	5	43	0.26	- 0.58	0.14	0.0	2	.....	.....	.....	ne.	J. P. Gage.
The Dalles.....	Wasco.....	112	34	68.8	- 2.0	98	18	43	28	42	0.00	- 0.18	0.00	0.0	0	27	1	3	w.	S. L. Brooks.
Toledo.....	Lincoln.....	50	19	59.0	- 2.2	85	28†	39	21	35	0.25	- 0.20	0.20	0.0	2	28	2	1	nw.	C. B. Croso.
Umatilla.....	Umatilla.....	340	19	72.8	+ 0.7	103	19	44	6†	47	T.	- 0.32	T.	0.0	0	27	3	1	w.	Mrs. H. T. Duncan.
Vale.....	Malheur.....	2,450	17	72.0	+ 3.0	104	18	33	28	58	T.	- 0.28	T.	0.0	0	28	3	0	e.	H. P. Osburn.
Wallace Orchard.....	Polk.....	.....	.....	63.9	.....	95	28	39	5	43	0.08	.....	0.08	0.0	1	14	13	4	.....	Chas. A. Park.
Wallowa.....	Wallowa.....	2,935	6	62.4	- 0.6	98	19	30	28	57	0.07	- 0.72	0.07	0.0	1	21	5	5	nw.	L. J. Coverstone.
Warm Spring.....	Crook.....	1,600	7	66.7	- 5.2	99	18†	39	6	52	0.00	- 0.50	0.00	0.0	0	27	3	1	nw.	Claude C. Covey.
Weston.....	Umatilla.....	1,800	19	69.3	+ 1.0	98	19	40	6	48	T.	- 0.74	T.	0.0	0	23	6	2	se.	M. A. Baker.
Williams.....	Josephine.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. M. John.

\* Precipitation included in that of the next measurement.

• Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.

† Also on other dates.

‡ Separate dates of falls not recorded.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

|| Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

|| Estimated by observer.

|| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

\*, †, ‡, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—Daily precipitation for August, 1909. District No. 12, Columbia Valley.

Stations.	River basins.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Montana.																																		
Anaconda	Missoula	.11					T.		.08	T.	T.	.02	T.		T.							.05		.28				.08		T.	T.	T.	0.62	
Bison Mountain	do	.23						T.	T.	T.				T.							T.			.72			T.						0.95	
Columbia Falls	Flathead	T.																							.10		T.						0.10	
Como	Bitter Root																				.10						.03			.03	.03		0.19	
Darby	do	.05						T.					T.	T.							.03	.05											0.13	
Dayton	Flathead																																	
East Anaconda	Missoula	.16					T.		T.			T.	T.	T.								.03		.38			.07			T.	T.	0.64		
Fortine	Flathead																																	
Hamilton	Bitter Root										.05			.12																			0.17	
Hat Creek	Missoula							T.	.19		T.														.45					T.			0.64	
Jocko	Flathead																																	
Kalispell	do	T.						T.			.01															.01		.09					0.11	
Lost Creek	Missoula																																	
Missoula	do																					.28					T.	T.	.06				0.34	
Ophir	do	.02							.30	.05	T.		.12	T.									.22		.36				.05				1.12	
Ovando	do																						.25		T.	T.		.05	.15				0.45	
Phillipsburg	do	T.							T.	T.	T.		.12	.06								.20						.22			T.	T.	0.60	
Pipestone Pass	do	.09					.02	T.	.09	T.	.09	.18		T.											.37			.22			T.	T.	1.06	
Plains	Columbia																																	
Pleasant Valley	Kootenai	.02									T.			T.												T.	.10						0.12	
Polson	Flathead																																0.00	
St. Ignatius	do										.02												.03		.01	T.		.03					0.09	
St. Regis	Missoula										.12																	.07					0.19	
Saltese	do																											.30					0.30	
Snowshoe	Kootenai	T.									.01															.09		.72					0.82	
Troy	do																											.32					0.32	
Upper Lake McDonald	Flathead	T.										.10																		.10			0.20	
Woodville	Missoula	.12						.05	.28	.03		T.													.20			.06					0.74	
Wyoming.																																		
Afton	Snake						.05	.02			.25	.05	.05	.20	.10								.01	.40							.80	1.93		
Alta	do																																	
Bedford	do				.07		.34					.03		.10											.35							.52	1.41	
Snake River	do												.30	.30											.10	.30						.10	1.10	
Nevada.																																		
San Jacinto	Snake	T.								T.														.14					T.	.03	.72	.40	1.29	
Idaho.																																		
Albion	Snake	.02						T.	T.			.16		T.								.05		.53					.11	T.	.25	1.14		
Almo	do						.02	T.				.25													.75						1.00	2.02		
Blackfoot	do	.06						T.	T.	.05		.05	.07	T.		T.									.69	T.				.18	.30	1.40		
Blanche	do																														T.	.10	0.10	
Bogus Creek	Payette	T.							T.	T.			T.																		.04	.06	0.10	
Boise	Boise	T.							T.	.01		T.																			T.	T.	0.01	
Bonanza	Salmon																																	
Bonniers Ferry	Columbia								.01	.03																			.13		.09	.02	0.13	
Boulder Mine	Snake																																0.15	
Buhl	do																																0.15	
Burke	Columbia																																0.30	
Caldwell	Boise																										.03	.27						
Calla Ranch	do																																	
Camas	Lost River Region	.50	.20							.06	T.	.05																		T.	.07		0.07	
Cambridge	Snake																													.15	T.	1.40		
Chesterfield	do						.03		.21	.23				.02	.15																		0.60	
Clawson	do	T.	.15				.05		.05		.55			.03	.20		T.	T.									.21				T.	.34	1.34	
Coeur d'Alene	Columbia																							.05	.52						.02	1.42		
Culdenae	Clearwater																															T.		
Dent	do																															T.		
Driggs	Snake	.02						T.			.55			.30							T.											.03	0.90	
Edie	Lost River Region		.10									.35		T.																			0.85	
Emmett	Payette																																0.00	
Forney	Salmon	.15							.05	T.	.23	T.										T.			.06				.14		T.	.06	.09	0.78
Gilbert	Clearwater										.02																							
Glenna Ferry	Snake																															.15	0.35	
Grand Forks	Columbia																												.35				T.	
Grandview	Snake	T.																																
Grimes Pass	Boise										.21																					.10	.02	1.33
Guffey	Snake	T.						T.	T.																						.01	T.	0.01	
Hailey	Wood-Malad																															.03	0.17	
Henry	Snake	.06		.01		.13	.09	.03				.27	.01	.13		.20	.02							.07	.14						.13	.56	1.94	
Hotspring	do	T.																							.21									
Idaho City	Boise									.22																						.27	.49	
Idaho Falls	Snake	.02							T.	T.		.02	.09			T.																	T.	
Indian Valley	do																															.22	.77	
Irwin	do	.07		.03			.06									.17															.05	.10	0.15	
Kellogg	Columbia																																1.02	
Kooskia	Clearwater																																0.23	
Lake	Snake	.75	T.											.50															.02	.66		.08	.83	
Lakeview	Columbia																																1.25	
Landore	Snake	.02																															0.05	
Lardo	Payette																																	



TABLE 2.—Daily precipitation for August, 1909. District No. 12—Continued.

Stations.	River basins.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Idaho—Cont'd.																																		
Salem.....	Snake.....	.11									.06													.17								.02	0.36	
Salmon.....	Salmon.....	.17	.02						T.	T.	.11	T.								T.				.34					T.		.04	T.	T.	0.68
Salmon River Dam.....	Snake.....	.18	.03																				T.										T.	0.78
Sheep Hill.....	Boise.....										T.																				.08	.05	0.13	
Silver City.....	Owyhee.....	T.							T.		.01																				.02	.07	0.10	
Soldier.....	Wood-Malad.....								T.									T.						.50	.25	.10	T.						0.85	
Standrod.....	Snake.....	T.					T.		.07					.02		.01						T.		.14								1.00	.41	1.24
Sugar.....	do.....		.08										.06	.02									.18	T.							T.		.75	
Sunnyside.....	do.....																																T.	
Tilden.....	do.....	T.								.40		T.	T.											.66								.10	T.	1.10
Twin Falls.....	do.....	.02																					.01	.03							.04	.20	0.23	
Vernon.....	do.....																																	
Wallace.....	Columbia.....																						T.	.01			.19	T.				.02	0.22	
Warfield.....	Wood-Malad.....																						T.									.10	.31	0.41
Wendell.....	Snake.....								T.															T.						T.	.13	T.	0.13	
Washington.																																		
Aberdeen.....	Coast.....									.06				.03	.11							.03		.03			.55	.45					1.26	
Anacortes.....	Puget Sound.....																							.10	.01	.15							0.26	
Baker.....	do.....															.15							.05			.16	.49						0.85	
Bellingham.....	do.....														T.	.01							.05			.31	.61						0.98	
Blaine.....	do.....	T.	T.	T.										T.	T.	.04							.05	.20		.02	1.42	.72	.02				2.47	
Bremerton.....	do.....																							.04		.05	.08						0.17	
Cedar River.....	do.....															.06							.07			.36	.02						0.51	
Centralia.....	Coast.....															.15						.05											0.20	
Cheney.....	Spokane.....																																0.00	
Chopaka.....	Okanogan.....				T.						T.												T.					.03					0.03	
Clearbrook.....	Puget Sound.....																																	
Clearwater.....	Coast.....	.07			.01					.01	T.	.01	T.	.48	.44							.02	.01	.08		152	.80	.20					4.28	
Clealum.....	Yakima.....																															.06	0.06	
Colfax.....	Palouse.....																																0.00	
Colville.....	Volumbia.....																																T.	
Concouilly.....	Okanogan.....			T.																			T.										T.	
Coupeville.....	Puget Sound.....																																	
Crescent.....	Spokane.....																																	
Davenport.....	Columbia.....																									.03							0.03	
Dayton.....	do.....																											.02	.18				0.02	
Detroit.....	Puget Sound.....															.05																	0.18	
Dixie.....	Columbia.....																						.02										0.42	
Duckabush.....	Puget Sound.....			.02																													0.20	
East Sound.....	do.....																						.20			.07			.05				0.34	
Ellensburg.....	Yakima.....																																0.00	
Ephrata.....	Columbia.....																																	
Forks.....	Coast.....																																	
Fort Simcoe.....	Yakima.....																																	
Gont Lake.....	Puget Sound.....															.20							.03			302	.00	.10					0.00	
Gold Creek.....	Yakima.....																																2.63	
Goldendale.....	Columbia.....																																0.00	
Granite Falls.....	Puget Sound.....																																0.00	
Hatton.....	Columbia.....														T.	.08						.11	.07			T.	.70						0.96	
Huntsville.....	do.....																																0.00	
Irene Mountain.....	do.....																											.04	.01				0.04	
Kennewick.....	do.....		.02																														0.03	
Kettle Falls.....	do.....																												T.				T.	
Kiona.....	Yakima.....																																0.00	
Kosmos.....	Columbia.....															.04																	0.00	
La Center.....	do.....															.12																	0.14	
La Crosse.....	Palouse.....																																0.14	
Lake Clealum.....	Yakima.....															T.																	0.04	
Lake Kachess.....	do.....																																T.	
Lake Keechelus.....	do.....																																0.16	
Lakeaside.....	Columbia.....	T.		T.																													0.36	
Laurel.....	do.....																																T.	
Lester.....	Puget Sound.....																																0.00	
Lone Tree.....	Coast.....	.04		T.						.02						.15	T.		T.		.01	.02		.12	.02		.46	.32	T.				0.30	
Longmires Springs.....	Puget Sound.....																																1.16	
Lost Creek.....	Columbia.....																																0.00	
Lucerne.....	do.....																																	
Lyle.....	do.....																																	
McCumbers Ranch.....	do.....																																T.	
Mottingers.....	do.....																																0.00	
Mount Pleasant.....	do.....																																0.00	
Moxee.....	Yakima.....																																0.63	
North Head.....	Coast.....	T.			T.						.02																						0.00	
Northport.....	Columbia.....															.12					.01	.02		.09			.09						0.35	
North Yakima.....	Yakima.....				T.																												T.	
Nutland.....	Columbia.....																																0.00	
Odessa.....	do.....																																0.00	
Olga.....	Puget Sound.....																																	

## MONTHLY WEATHER REVIEW.

AUGUST, 1909

TABLE 2.—Daily precipitation for August, 1909. District No. 12—Continued.

[illegible]



Stations.	River basins.	Day of month.																														Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Oregon—Cont'd.																																
Miramonte Farm.....	Willamette													.12	.04								.05									0.21
Monroe.....	do.													.19								.02										0.21
Mountain Home.....	Columbia	.05			T.									.19						.04		.02					.06					0.36
Mount Angel.....	Willamette													.29													.03					T.
Mount Hood.....	Columbia																										T.					T.
Mountain Park.....	do.													T.																		T.
Mountain Ranch.....	Rogue																															0.00
Musick.....	Umpqua															.10																0.34
Newport.....	Coast													.14	.02													.25				0.16
Nigger Flat.....	Malheur																															0.00
Ochoco.....	Deschutes																															0.00
Ochoco Creek.....	do.																															0.00
Owyhee.....	Owyhee																				T.											T.
Pendleton.....	Umatilla																															0.00
Persist.....	Rogue																															15
Pilot Rock.....	Umatilla																				T.		.02									0.02
Pompeii.....	Willamette															.33											.50					0.83
Portland.....	do.													T.								T.	.05				T.					0.05
Port Orford.....	Coast													.28																		0.28
Post.....	Deschutes																															0.00
Power House.....	Walla Walla																	T.							T.							T.
Prineville.....	Deschutes																															0.00
Prospect.....	Rogue																															0.00
Range.....	John Day																															0.00
Ray Creek.....	Columbia																															

TABLE 3.—Maximum and minimum temperatures at selected stations for August, 1909. District No. 12, Columbia Valley.

Date.	Montana.				Afton, Wyo.		Idaho.																											
	Kalispell.		Missoula.				Boise.	Bonners Ferry.		Holepring.		Lewiston.		Mackay.		Meadows.		Pocatello.		Salmon.		Shoshone.		Vernon.		Wallace.								
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.					
1...	76	50	79	53	.....	.....	84	64	80	46	95	56	86	61	83	31	79	51	85	62	85	54	85	61	.....	.....	76	42						
2...	75	47	79	48	.....	.....	84	53	78	49	93	52	83	57	81	31	89	49	81	51	80	45	81	50	.....	.....	70	42						
3...	77	45	85	42	.....	.....	92	54	84	43	94	50	91	56	86	32	88	37	91	53	86	44	89	51	.....	.....	80	42						
4...	76	50	82	47	.....	.....	89	57	78	49	92	54	83	66	85	32	86	41	90	61	92	42	89	57	.....	.....	74	50						
5...	72	42	76	46	.....	.....	82	53	74	38	90	54	79	55	83	34	78	40	86	58	88	51	83	54	.....	.....	68	40						
6...	74	39	79	38	.....	.....	85	50	87	34	89	49	83	48	83	33	79	35	87	54	87	41	84	47	.....	.....	74	34						
7...	73	41	80	45	.....	.....	86	53	72	40	88	50	86	51	82	33	80	48	87	65	83	46	79	51	.....	.....	75	38						
8...	78	40	87	39	.....	.....	92	58	87	40	94	60	93	50	79	31	86	34	87	66	87	40	83	55	.....	.....	81	38						
9...	88	46	92	49	.....	.....	94	64	91	40	100	60	98	57	83	33	90	52	89	61	90	45	87	58	.....	.....	88	45						
10...	86	56	92	54	.....	.....	93	64	89	55	96	61	90	63	85	34	92	49	89	65	88	56	89	59	.....	.....	81	52						
11...	84	49	92	47	.....	.....	92	60	87	40	94	58	92	56	89	35	91	45	90	61	89	46	89	63	.....	.....	80	44						
12...	84	46	93	48	.....	.....	93	60	86	41	95	58	94	55	92	45	92	41	88	64	88	47	90	62	.....	.....	83	44						
13...	82	44	87	52	.....	.....	92	59	89	44	92	48	95	56	86	45	90	55	89	62	90	48	87	57	.....	.....	84	45						
14...	89	47	95	47	.....	.....	96	58	91	46	97	52	93	57	92	46	91	38	93	56	94	42	90	58	.....	.....	89	48						
15...	77	49	82	51	.....	.....	85	54	93	43	87	50	78	59	90	44	84	40	84	60	92	37	86	49	.....	.....	78	44						
16...	77	42	83	43	.....	.....	88	52	91	41	90	53	87	51	84	49	88	38	87	57	90	43	85	54	.....	.....	73	40						
17...	80	43	90	42	.....	.....	93	57	92	41	94	54	95	54	85	55	92	39	90	52	91	42	87	49	.....	.....	84	42						
18...	85	45	92	46	.....	.....	96	58	99	56	96	55	99	57	85	54	93	40	91	55	93	44	90	52	.....	.....	86	45						
19...	85	48	93	46	.....	.....	99	61	90	40	98	56	105	58	90	58	96	38	92	57	94	42	92	53	.....	.....	91	47						
20...	85	47	91	50	.....	.....	95	62	95	42	98	65	88	66	91	65	92	45	92	64	94	45	93	58	.....	.....	80	53						
21...	74	50	77	49	.....	.....	82	54	78	50	93	60	81	58	88	55	80	42	85	65	87	59	85	61	.....	.....	70	51						
22...	81	42	89	41	.....	.....	94	56	75	38	94	54	88	51	84	44	87	34	85	55	93	39	87	55	.....	.....	79	39						
23...	74	45	73	56	.....	.....	77	54	79	40	91	53	78	60	76	55	81	45	73	54	84	51	73	58	.....	.....	72	40						
24...	65	41	78	42	.....	.....	85	49	72	40	86	49	73	51	75	39	80	33	78	42	79	36	80	42	.....	.....	66	40						
25...	78	38	86	46	.....	.....	90	53	82	41	90	49	81	52	84	46	86	36	87	48	88	40	86	48	.....	.....	81	38						
26...	76	48	85	47	.....	.....	91	58	80	40	93	53	84	59	87	49	87	40	93	55	94	41	90	55	.....	.....	80	50						
27...	69	43	69	50	.....	.....	73	48	72	35	84	52	76	51	84	55	70	37	78	48	86	46	84	52	.....	.....	68	40						
28...	73	35	81	34	.....	.....	89	45	81	30	89	43	88	45	78	40	85	27	87	39	82	31	86	39	.....	.....	78	34						
29...	80	38	93	41	.....	.....	96	62	86	38	90	65	93	53	82	45	92	39	90	55	90	43	88	64	.....	.....	90	42						
30...	84	46	92	46	.....	.....	87	66	90	40	89	68	90	54	80	50	87	44	86	61	87	43	87	64	.....	.....	87	43						
31...	80	49	84	61	.....	.....	79	66	91	40	81	66	94	54	68	55	85	55	70	60	76	57	75	63	.....	.....	95	44						
Mns	78.5	44.9	85.0	46.6	.....	.....	88.8	56.8	84.2	41.9	92.0	55.1	88.2	55.5	83.9	43.6	86.3	41.5	86.5	57.0	88.0	44.7	85.8	54.8	.....	.....	79.4	43.1						

Washington.																												
Date.	Aberdeen.		Blaine.		Colville.		Kosmos.		Lakeside.		North Head.		North Yakima.		Odessa.		Port Crescent.		Seattle.		Sixprong.		Spokane.		Tacoma.		Tatoosh Island.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	65	49	68	50	87	42	69	52	83	63	59	53	82	57	85	57	59	47	65	54	86	56	80	60	68	53	58	51
2...	68	54	65	41	84	44	82	40	81	54	60	54	84	32	80	49	59	43	68	54	82	54	76	52	70	50	59	51
3...	63	49	69	47	87	43	82	42	88	58	61	54	90	39	89	49	61	51	70	53	91	57	85	52	73	51	58	51
4...	67	45	69	51	89	44	69	50	80	60	58	52	80	56	81	63	59	48	63	53	83	56	76	59	65	53	56	50
5...	69	40	67	39	87	49	78	39	78	49	58	52	78	48	72	47	62	39	68	51	77	48	74	48	68	48	58	51
6...	76	42	73	38	83	33	86	37	84	52	58	51	82	50	81	46	66	38	71	52	83	56	77	44	71	48	61	48
7...	68	48	75	43	88	36	87	37	90	54	57	53	87	54	84	48	60	40	79	51	87	60	82	45	78	49	56	50
8...	69	45	70	44	90	35	86	38	90	54	56	52	90	53	89	41	58	50	70	53	93	55	86	49	71	50	56	51
9...	69	52	71	43	84	37	76	48	90	61	58	53	93	53	93	52	60	48	66	52	95	60	92	55	70	52	58	50
10...	64	49	71	44	88	48	86	48	86	57	60	53	86	54	86	55	60	50	71	52	89	59	83	61	73	52	56	50
11...	63	51	72	44	90	38	85	40	89	56	56	52	87	54	83	43	57	49	72	51	93	53	86	50	75	51	55	51
12...	67	53	72	48	92	38	80	43	92	58	59	53	89	57	90	42	62	49	72	52	93	53	88	50	73	52	57	51
13...	64	55	67	57	92	39	88	46	93	59	61	54	88	56	90	47	62	51	76	55	92	52	88	56	78	54	59	51
14...	63	54	70	52	94	40	82	45	89	59	58	54	90	60	91	49	69	48	69	56	89	58	88	52	71	54	59	53
15...	66	46	68	46	80	57	73	44	80	56	62	54	77	52	86	41	62	45	66	51	78	53	73	54	67	49	59	51
16...	69	42	70	49	85	38	82	36	87	55	62	52	82	51	92	45	62	46	74	51	88	41	81	45	74	47	59	51
17...	68	43	74	41	93	37	90																					



TABLE 3.—Maximum and minimum temperatures at selected stations for August, 1909. District No. 12—Continued.

Date.	Oregon.																									
	Walla Walla, Wash.		Ashland.		Baker City.		Eugene.		Gold Beach.		Hermiston.		Marshfield.		Portland.		Prineville.		Roseburg.		The Dalles.		Vale.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	82	59	83	51	77	56	76	53	65	44	83	60	67	56	70	55	78	43	75	54	79	64	97	66		
2.....	82	55	88	51	78	43	79	44	72	42	85	53	68	46	78	50	81	36	84	45	85	53	92	42		
3.....	91	57	87	56	86	48	92	50	69	46	94	52	65	46	78	57	84	40	86	50	85	57	98	43		
4.....	80	57	82	55	75	51	79	53	68	44	82	60	61	55	66	53	75	45	72	53	79	55	93	58		
5.....	77	52	80	47	72	45	73	42	65	49	80	49	65	42	73	46	74	36	77	43	79	47	91	57		
6.....	82	49	80	48	75	42	80	45	64	44	86	39	65	48	81	53	78	33	81	46	84	48	89	42		
7.....	87	55	85	53	77	51	83	47	66	46	89	42	63	53	84	53	79	36	87	46	88	52	89	57		
8.....	92	53	90	57	86	47	83	48	65	44	94	44	63	51	82	55	87	37	85	50	92	54	93	51		
9.....	94	61	89	57	92	50	80	46	68	44	97	53	64	53	73	54	89	44	83	48	86	55	101	45		
10.....	89	64	89	55	87	57	78	49	66	49	91	62	65	48	74	50	85	43	81	49	82	56	101	54		
11.....	91	60	88	57	86	52	81	48	62	46	92	52	63	54	80	55	85	43	83	49	88	50	100	58		
12.....	92	63	87	50	86	51	80	53	64	53	95	61	66	54	69	53	95	42	74	52	85	56	100	50		
13.....	94	60	87	53	89	55	81	54	70	49	94	60	71	51	81	54	88	39	85	53	88	55	96	54		
14.....	91	63	79	51	90	51	81	46	69	55	92	54	68	54	73	54	82	43	72	50	83	60	98	41		
15.....	76	57	76	55	74	48	69	45	62	46	90	55	65	51	71	51	73	50	75	51	74	55	95	53		
16.....	87	53	77	48	81	46	76	49	66	41	87	52	66	42	78	48	92	37	83	43	85	47	96	46		
17.....	95	57	92	55	88	51	84	44	69	42	95	42	69	46	85	55	90	40	90	46	92	51	102	46		
18.....	98	64	96	59	90	54	88	57	66	44	100	48	69	52	91	61	93	44	96	50	98	56	104	49		
19.....	99	62	92	63	97	55	84	55	66	48	102	53	67	56	80	59	92	48	86	58	92	57	103	51		
20.....	86	60	82	56	80	54	82	48	64	42	89	63	66	55	68	54	78	41	66	52	82	58	102	62		
21.....	78	53	81	46	76	43	75	45	65	43	81	52	65	44	75	47	75	36	81	52	80	49	89	54		
22.....	85	55	78	52	87	45	75	44	67	40	88	44	67	40	72	50	78	38	73	44	81	51	96	40		
23.....	78	55	77	46	69	49	74	55	67	43	86	56	68	56	75	57	74	40	76	48	76	62	85	55		
24.....	72	57	85	50	83	42	76	44	68	43	79	52	67	43	70	51	79	37	84	47	80	50	87	40		
25.....	90	60	88	56	86	46	88	50	71	45	92	53	76	46	84	50	85	41	89	48	86	51	91	46		
26.....	78	55	81	59	84	48	83	58	64	56	79	62	72	52	69	55	78	47	71	52	80	64	94	45		
27.....	75	52	84	44	68	38	75	41	74	54	76	41	69	43	74	49	72	31	78	41	76	46	80	46		
28.....	86	48	97	56	81	38	92	45	67	45	86	38	78	40	87	56	83	32	94	46	85	43	87	33		
29.....	89	59	87	54	94	49	88	46	69	50	92	44	70	55	77	57	88	38	83	47	87	49	101	43		
30.....	88	62	82	53	81	53	79	45	66	43	90	44	63	51	78	51	85	40	84	46	89	51	89	56		
31.....	91	60	73	59	84	53	79	47	66	54	95	45	63	52	81	55	85	40	82	54	87	53	87	53		
Mean.....	86.3	57.3	84.6	53.3	82.5	48.7	80.1	48.3	66.8	46.3	89.1	51.1	66.9	49.5	76.7	53.2	82.6	40.0	81.2	65.0	84.3	53.4	94.4	49.5		

## WEATHER, FORECASTS, AND WARNINGS FOR THE MONTH.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

July closed with a barometric depression over the Caribbean Sea within which two disturbances of slight intensity appeared. One of the disturbances moved northward between Santo Domingo and Porto Rico and thence to the Atlantic coast of the United States, attended along the middle Atlantic seaboard by heavy rains on the 4th and 5th, and the other passed over the Gulf of Mexico to the Texas coast with moderate to heavy rains in the middle and west Gulf coastal districts from the 4th to 8th. The rains that attended the Gulf disturbance verified a special forecast issued Thursday, July 29, in which the statement was made that rains would fall in middle and west portions of the cotton belt, where rain was needed, by the middle of the following week. The rains set in as scattered showers about the middle of the week referred to and became more general Friday and Saturday, and the precipitation for the latter half of the week aggregated about or slightly more than the normal weekly rainfall.

A cool wave that advanced from west of the Rockies over the Plains States and Missouri Valley from the 6th to 8th afforded temporary relief from high temperatures in the Middle West that had risen above  $100^{\circ}$  and had exceeded at some points any previous record for the season of the year. During the 8th and 9th temperatures were excessively high in the Eastern States and ranged from  $92^{\circ}$  to  $98^{\circ}$  in the lower Lake region, Ohio Valley, and Middle Atlantic States with highest reported readings,  $98^{\circ}$ , at Philadelphia and Baltimore on the 9th. The warm wave in the East was broken by an area of high barometer that moved eastward and southward from the Great Lakes during the 10th and 11th.

During the first decade of the month there was a decided lack of rain in the corn growing States of the Mississippi and Ohio valleys, and in the upper Mississippi Valley the drought had become severe. Rain was also badly needed in the middle Atlantic and New England States. On the 10th an announcement was made that the rains over the western portions of the cotton belt during the preceding two or three days would be supplemented during the succeeding several days by abundant rains in that section and generally over the Southern States. The rains set in as anticipated on the 12th and continued through the 13th. The following special forecast was issued Wednesday, August 11:

Present barometric conditions indicate that the prevailing drought in the Atlantic States from Virginia northward over Maryland, Pennsylvania, New York, and New England will be relieved in part by showers by the close of the present week and that more general rains will fall in the States referred to by the middle of next week.

A period of rainy weather that set in over the Middle Atlantic and New England States during the closing days of the week ending August 14 continued until the middle of the following week and in areas in those districts the rainfall was excessive. Two barometric depressions contributed to produce the rains. One advanced from the West from the 11th to 16th, and the other developed off the Carolina and Virginia coasts and moved northward attended by high winds from New Jersey to Maine.

On the 9th reports from Yucatan and the Mexican Gulf coast indicated the presence of a disturbance of marked intensity near or west of the northern point of Yucatan or in the Gulf of Campeche. By the following morning the center of the disturbance had apparently moved westward toward the Mexican coast in the vicinity of Tampico after which it appeared to pass inland north of Tampico and dissipate in heavy rains in the mountain districts during the 10th and 11th. During the presence of this storm over the western portion of the Gulf of Mexico, far from stations of observation, its course could not be determined. Shipping interests were however given informa-

tion as definite in character as conditions warranted and with the appearance of the disturbance near Yucatan were advised that it was considered unsafe for vessels over central and western portions of the Gulf of Mexico. The westward advance of the storm center over the Mexican coast line and thence into the mountainous interior rather than along a normal northerly course can not be accounted for. By reason of the anomalous path it pursued, expected rough weather over the northwestern portion of the Gulf was not experienced and there was a less extensive distribution of general rains over the Southern States than was anticipated in a special forecast that was issued August 10.

On the 16th a disturbance appeared east of the Virgin Islands, W. I., moved rapidly thence on a northwest course, and apparently recurved during the 17th and 18th to the south and east of Bermuda. On the latter date another disturbance appeared off the Carolina coast and moved northward and then northeastward over the Atlantic without being severely felt at coast stations. Preceding the northward advance of this storm a disturbance that moved from the Lake region to the middle Atlantic coast caused excessive rains on the New Jersey and New York coasts, the precipitation at New York City for the twenty-four hours ending at 8 a. m. of the 17th being 5.04 inches. During the prevalence of the stormy conditions above referred to in eastern and southern waters a period of heat that for duration and intensity had been unequaled since 1901 prevailed in the Western States, and more particularly from the Great Plains over the lower Missouri and middle Mississippi valleys. The heat in the West was broken the night of the 17th and during the 18th, without the usual accompaniment of rain, and relief from the intense heat was had in the Southwestern States on the 19th.

Morning reports of the 18th indicated the presence of a disturbance to the eastward of the Island of Dominica, W. I. By 2 p. m. the center of the disturbance had advanced to a position south and east of St. Kitts and probably near Guadaloupe. West Indian ports were advised that the storm would move north of west and probably pass near the Virgin Islands and Porto Rico. By the morning of the 19th the storm center was south of and near Porto Rico and moving in a north of west direction. Afternoon reports of the 19th indicated that the center of the disturbance was approaching Santo Domingo and advices were issued to the effect that the storm would continue a west-northwest course toward the Bahama Islands. By the morning of the 20th the center had advanced over Santo Domingo and was apparently north of Port au Prince, Haiti, and by the following morning it had apparently recurved over the Atlantic beyond the region of observation.

Closely following this disturbance came a storm that showed marked intensity during its passage over the Caribbean Sea and the Gulf of Mexico and occasioned an enormous loss of life and property in northeastern sections of Mexico. This storm, or hurricane, appeared east-northeast of Barbados on the 20th and advices were then issued that it would probably move on a westerly course. By the morning of the 21st the center had advanced to the vicinity of Martinique, from which position it moved westward and on the morning of the 22d was central south of and apparently near Porto Rico. Vessel interests were advised as follows:

Hurricane of marked intensity near and south of Porto Rico moving westward. Dangerous for vessels over western West Indian waters during next several days.

On the 23d there appeared to be two cyclonic centers, one moving on a north of west course over the Windward Passage and another, a secondary or "twin" storm, south of Haiti. The



former evidently dissipated over the southern Bahamas or passed northward over the ocean without acquiring marked intensity and the other moved westward to a position off the southern coast of central Cuba by the 24th and reached the Yucatan Channel on the 25th. On the 23d the storm caused great loss of property on the Mole St. Nicholas, Haiti, many houses being wrecked by high easterly gales and by waves that rolled in from the bay. Some damage was also caused to banana fields on the north side of Jamaica. Advices issued on the 23d noted the presence of the more southern storm and stated that the northern disturbance would move west-northwest in the region of the Bahamas; also that rough water would be experienced in Cuban waters and probably as far south as Jamaica. During the 24th the southern provinces of Cuba were visited by heavy winds and rains that caused considerable property damage and in the afternoon a wind velocity of 60 miles an hour from the northeast was reported at Havana. On that date advices were issued that the storm would move west-northwest toward the southeastern portion of the Gulf of Mexico and vessels were cautioned to avoid those waters.

On the 25th the steamship *Cartago* was obliged to heave-to thirteen hours in the Yucatan Channel with wind blowing at an estimated velocity of 100 miles an hour, beginning in the morning from the northeast and shifting shortly after noon to east by southeast and continuing from that quarter during the afternoon. The position of the *Cartago* in the channel, twenty-five miles off the Yucatan coast, with hurricane winds, and high seas that dashed over the ship, and a current from the Gulf running in an opposite direction, was one of extreme peril. Damage, however, was of a minor character. The morning of the 26th the captain sent an account of the storm by wireless to New Orleans, via Burrwood, La. This was the first instance of a storm experience at sea that was transmitted in season to be utilized in current forecast work. The distance between the ship and the receiving station was about 500 miles.

Following a west-northwest course from the Yucatan Channel the hurricane center reached a position in the Gulf off and probably southeast of the mouth of the Rio Grande River by the morning of the 27th and moved thence inland near the mouth of the Rio Grande, attended by excessive rains that caused an enormous loss of life and property by flood in northeastern districts of Mexico. The following extracts from a report by J. L. Cline, Weather Bureau Observer at Corpus Christi, Tex., indicates the character of the wind and seas that were experienced on the southern Texas coast that was covered by the north, or dangerous, semicircle of the hurricane:

The barometer fell slightly during the afternoon and night of the 26th. On the 27th it was comparatively low and oscillating and reached the lowest reading, 29.73 inches, at 4:30 p. m. The wind was from the northeast, occasionally shifting to east, and thunderstorms came from the southeast. The wind reached a maximum velocity of 66 miles from the east at 2:28 p. m., and 48 miles an hour from the east was reached at 2:53 a. m. of the 28th. The wind subsided during the evening and night of the 28th. Unusually high tides and rough seas prevailed on the 27th and 28th. Low lands on Harbor, St. Joseph, Mustang, Padre, and other islands along the Gulf coast south and east of Corpus Christi from St. Joseph Island south to the mouth of the Rio Grande were inundated. The water in Corpus Christi and Neuces bays was higher than for many years and reached a maximum height about 8:30 a. m. of the 28th. The water covered low lying portions of Corpus Christi, and even where the land is comparatively high along the bay front in central and northern portions of the city, waves would occasionally dash over the bank. A number of wharves and piers were damaged. All low lands or "flats" north and northwest of the city, bordering on Neuces Bay, were submerged to a depth of 1 to 3 feet. The water receded slowly during the 29th. People living on the low islands along the Gulf state that the warnings of the Bureau were timely and enabled them to reach points of safety. This accounts for the fact that no lives were lost on the Texas coast during the passage of this tropical storm.

A special, dated August 30, from Point Isabel, Tex., to the Corpus Christi Herald reads as follows:

The people who were at Tarpon Beach are loud in their praises of the United States Weather Bureau, and say that had it not been for the warn-

ings sent out by the Bureau that everyone of them might have been drowned. As it was, they received warnings in time to seek safety in the quarantine station, where they all remained until the storm was over.

Messages received during the 27th from the Point Isabel Life-Saving Station on Brazos Island, at the mouth of the Rio Grande River indicated the character of the storm at that point. The first message was sent in the morning and stated that the crew of the station had saved everybody at Tarpon Beach. A later message, received by the Superintendent of the Ninth District Life-Saving Service at Galveston was as follows:

This vicinity struck by a violent hurricane. Keeper and crew compelled to abandon station. Stopped at Tarpon Beach and rescued all people in surf boats and brought them over to Point Isabel. Station in a dangerous condition. Keeper and crew still at Isabel. Heavy weather.

In reply to a message from the Superintendent for further information the Keeper reported about 9 p. m. as follows:

People and crew left the station at daylight, at which time seas were breaking against the station and over Tarpon Beach. Rescued everybody. Unable to return to station this day. Station has not been sighted on account of hurricane since crew left. Hurricane still blowing and sea raging.

The value of advices and warnings issued in connection with this storm may be inferred from the fact that reports fail to show the loss of a single vessel along or near its course, that extended from the eastern islands of the West Indies to the western course of the Gulf of Mexico; neither do reports indicate that any vessel that cleared from United States or West Indian ports ran into the hurricane.

From the 27th to 30th a shallow barometric depression advanced from the Caribbean Sea south of Haiti northwestward to the Florida Peninsula and at the close of the month was central off the northeast Florida coast. This was the last of a series of barometric depressions of greater or less intensity that appeared over the tropical and subtropical regions of the Atlantic and Gulf of Mexico during June, July, and August and moved thence westward or northwestward. During the closing days of August pressure conditions over the Caribbean Sea resumed a normal aspect, and the first summer high barometer area of any considerable magnitude advanced from the British Northwest Territory to the Atlantic seaboard attended by temperature falls of 20°, or more, over the interior where temperature had been almost uninterruptedly high during July and August. Warnings for frost in the cranberry districts of Wisconsin were issued for the nights of the 28th and 29th and were verified, and frost occurred, as forecast, in northeastern New York and the interior of Maine, New Hampshire, and Vermont on the morning of the 31st.

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
New England.....	12	66.4	- 0.8	+ 2.8	+ 0.4
Middle Atlantic.....	16	71.4	- 1.4	+ 8.7	+ 1.1
South Atlantic.....	10	77.9	+ 0.2	+11.1	+ 1.4
Florida Peninsula*.....	8	82.4	+ 0.6	+15.9	+ 2.0
East Gulf.....	11	81.0	+ 1.8	+ 9.3	+ 1.2
West Gulf.....	10	83.6	+ 2.8	+13.5	+ 1.7
Ohio Valley and Tennessee.....	13	76.1	+ 1.3	+ 6.7	+ 0.8
Lower Lakes.....	10	69.4	0.0	+ 1.9	+ 0.2
Upper Lakes.....	12	68.6	+ 2.6	+ 7.0	+ 0.9
North Dakota*.....	9	68.8	+ 2.8	- 1.1	- 0.1
Upper Mississippi Valley.....	14	76.8	+ 4.0	+ 4.2	+ 0.5
Missouri Valley.....	12	78.5	+ 4.7	+ 7.1	+ 0.9
Northern slope.....	9	69.1	+ 2.3	- 2.4	- 0.3
Middle slope.....	6	78.6	+ 3.4	+ 6.6	+ 0.8
Southern slope*.....	8	81.7	+ 2.2	+12.2	+ 1.5
Southern Plateau*.....	11	77.1	- 0.6	- 5.1	- 0.6
Middle Plateau*.....	10	70.4	+ 1.3	+ 3.9	+ 0.5
Northern Plateau*.....	12	66.9	+ 0.1	- 3.8	- 0.5
North Pacific.....	7	59.6	- 1.5	-10.3	- 1.3
Middle Pacific.....	5	65.6	- 1.2	- 2.4	- 0.3
South Pacific.....	4	70.7	+ 0.2	- 1.3	- 0.2

\*Regular Weather Bureau and selected cooperative stations.

## Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		Inches.	Inches.
New England.....	12	2.53	66	- 1.3	- 0.9
Middle Atlantic.....	16	3.08	69	- 1.4	+ 0.9
South Atlantic.....	11	5.40	88	- 0.7	- 3.9
Florida Peninsula.....	8	8.25	122	+ 1.5	+ 2.0
East Gulf.....	11	4.86	100	0.0	+ 7.0
West Gulf.....	10	2.27	76	- 0.7	+ 9.1
Ohio Valley and Tennessee.....	13	2.29	66	- 1.2	+ 3.0
Lower Lakes.....	10	2.08	70	- 0.9	+ 0.9
Upper Lakes.....	12	2.88	97	- 0.1	+ 0.7
North Dakota.....	9	3.05	136	+ 0.8	+ 0.6
Upper Mississippi Valley.....	15	2.46	58	- 1.3	+ 1.1
Missouri Valley.....	12	1.88	56	- 1.3	+ 0.8
Northern slope.....	9	0.74	60	- 0.5	- 2.5
Middle slope.....	6	1.16	47	- 1.0	- 6.3
Southern slope.....	8	1.41	59	- 1.0	- 0.0
Southern Plateau.....	11	3.06	196	+ 1.5	+ 0.3
Middle Plateau.....	10	1.45	193	+ 0.7	- 0.1
Northern Plateau.....	12	0.32	62	- 0.2	- 2.0
North Pacific.....	7	0.76	100	0.0	+ 6.7
Middle Pacific.....	7	T.	100	0.0	+ 5.2
South Pacific.....	4	T.	100	0.0	

\*Regular Weather Bureau and selected cooperative stations.

## Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England.....	75	- 7	Missouri Valley.....	64	- 3
Middle Atlantic.....	71	- 0	Northern slope.....	56	+ 4
South Atlantic.....	81	- 1	Middle slope.....	59	0
Florida Peninsula.....	82	+ 2	Southern slope.....	61	0
East Gulf.....	78	+ 2	Southern Plateau.....	50	+ 8
West Gulf.....	69	+ 8	Middle Plateau.....	47	+ 14
Ohio Valley and Tennessee.....	73	+ 1	Northern Plateau.....	39	- 3
Lower Lakes.....	68	+ 3	North Pacific.....	74	+ 7
Upper Lakes.....	76	+ 1	Middle Pacific.....	58	- 9
North Dakota.....	71	+ 1	South Pacific.....	63	- 3
Upper Mississippi Valley.....	69	- 1			

## Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Block Island, R. I.....	17	54	e	Pierre, S. Dak.....	6	50	se.
Charleston, S. C.....	16	50	nw.	Pt. Reyes Light, Cal.....	20	53	nw.
Corpus Christi, Tex.....	27	56	e.	Do.....	22	54	nw.
Detroit, Mich.....	15	60	nw.	Do.....	23	50	nw.
Indianapolis, Ind.....	27	58	s.	Do.....	31	54	nw.
Mt. Tamalpais, Cal.....	22	66	nw.	Sand Key, Fla.....	24	56	se.
Pensacola, Fla.....	19	63	s.	Do.....	25	54	se.
Do.....	23	60	se.	Tatoosh Island, Wash.....	25	52	s.
Do.....	28	53	n.				

## RIVERS AND FLOODS.

There were no floods of great consequence in the United States during the month. Heavy rains from the 1st to the 3d, inclusive, over the South Atlantic States caused decided rises in the rivers of the Carolinas and Georgia and flood stages in the Wateree and Santee rivers. Warnings were issued in ample time to protect all interests, and no damage was done as the waters were not sufficiently high to injure crops.

The great rivers of the country fell steadily, as a rule, but there was sufficient water for purposes of navigation in nearly all localities.

Torrential rains in the mountain districts of Colorado, New Mexico, and Arizona, from the 16th to the 18th, were soon followed by swollen streams that filled the canons and arroyos, and overflowed banks generally. In some places in the Canon of the Arkansas River in Colorado the stages were the highest of record, and the total losses were about \$250,000, divided as follows:

Property other than crops.....	\$170,000
Crops.....	25,000
Soil erosion, or deposit.....	5,000
Suspension of business.....	50,000
Total.....	\$250,000

As is usual in floods of this character, the railroads were the principal sufferers. Owing to the extreme rapidity with which these mountain floods originate and move, it is impossible to forecast their approach, and therefore there were no warnings issued except for that portion of the Arkansas River from Salida to Pueblo, Colo.

The terrible disaster that visited the city of Monterey Mexico, on August 28 was due to an enormous rise in the Santa Catarina River that traverses the narrow valley in which the city of Monterey is situated. A tropical storm that had moved across the Gulf of Mexico and had reached the mainland on the 27th was the exciting cause, and for three days an enormous

## Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England.....	5.2	+ 0.2	Missouri Valley.....	3.0	- 1.1
Middle Atlantic.....	4.6	- 0.5	Northern slope.....	3.2	- 0.7
South Atlantic.....	4.8	- 0.4	Middle slope.....	4.3	+ 0.5
Florida Peninsula.....	6.2	+ 1.0	Southern slope.....	4.1	+ 0.2
East Gulf.....	4.8	- 0.4	Southern Plateau.....	4.4	+ 0.7
West Gulf.....	3.8	- 0.2	Middle Plateau.....	4.0	+ 0.7
Ohio Valley and Tennessee.....	3.9	- 0.6	Northern Plateau.....	2.0	- 0.3
Lower Lakes.....	4.0	- 0.6	North Pacific.....	4.2	- 0.4
Upper Lakes.....	5.1	+ 0.4	Middle Pacific.....	2.9	- 0.7
North Dakota.....	3.3	- 0.7	South Pacific.....	1.8	- 1.0
Upper Mississippi Valley.....	3.4	- 0.8			

## RAINFALL IN JAMAICA.

Through the kindness of Mr. Maxwell Hall, meteorologist to the government of Jamaica and now in charge of the meteorological service of that island, we have received the following data:

## Comparative table of rainfall.

[Based upon the average stations only.]

AUGUST, 1909.

Divisions.	Relative area.	Number of stations.	Rainfall.	
			1909.	Average.
			Inches.	Inches.
Northeastern division.....	25	17	8.60	7.57
Northern division.....	22	41	6.15	4.44
West-central division.....	26	20	10.78	9.52
Southern division.....	27	26	7.03	5.20
Means.....	100		8.14	6.68

The rainfall for the island for the month of August was therefore an inch and a half above the average. The heaviest rainfall, 19.90 inches, was recorded at Glasgow Estate, and the least was 1.23 inches, at Pedro Plains.



quantity of rain fell throughout the Santa Catarina watershed which is flanked by high mountains. The flood is said to have been the greatest since that of 1881.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on

the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.—H. C. Frankenfield, Professor of Meteorology.

### SPECIAL PAPERS ON GENERAL METEOROLOGY.

#### RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZGERALD TALMAN, Librarian.

The following have been selected from among the titles of books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be lent for a limited time to officials and employees who make application for them. Anonymous publications are indicated by a —.

#### Algué, José.

... Mirador observatory, Baguio, Benguet. Manila. 1909. 11 p. 8°.

#### Apia (Samoa). Observatorium.

Bericht ... 1908. (Aus den Nachrichten der K. Gesellschaft der Wissenschaften zu Göttingen. Geschäftliche Mitteilungen. 1909. Heft 1. 3 p.)

#### Berecz, E. de, & Pécsi, A.

Les observations sismiques de Hongrie. 4 p. 8°.

#### Bührer, C.

... Le climat de la Haute-Savoie. Lausanne. 1901. p. 133-211. 8°. (Bulletin de la Société vaudoise des sciences naturelles. 4 s. v. 37. no. 139.)

... Le climat de Montreux. (Separatabdruck aus Heft 1 der "Annalen der Schweiz. balneologischen Gesellschaft." 6 p. 8°.)

Le climat du Valais. Sion. 1898. 229 p. 8°. (Extrait du Bulletin des travaux de la Murithienne. Société valaisanne des sciences naturelles.)

... La température de Montreux. Lausanne. 1908. p. 83-85. 8°. (Bull. de la Soc. vaudoise des sci. nat. 5 sér. v. 44. Mars 1908. no. 162.)

#### Catania. R. osservatorio.

Osservazioni meteorologiche 1908. (Dagli Atti dell' Accademia gioenia di scienze naturali in Catania. Serie 5. v. 2. 7 p.)

#### Craig, J. I.

The prediction of Nile floods. Alexandria. 1909. 7 p. 4°. (Reprinted from "The Cairo scientific journal," no. 34. v. 3, July, 1909.)

#### Finland. Institut météorologique central de la Société des sciences de Finlande.

Meteorologisches Jahrbuch ... Bd. 2. 1902. Helsingfors. 1909. 23 p. f°.

Observations météorologiques ... État des glaces et des neiges ... 1896-1897, 1897-1898. 2 v. Helsingfors. 1908-1909. f°.

#### Giorgi, Cosimo de.

La distribuzione della pioggia sulla penisola Salentina. Lecce. 1908. 71 p. 4°.

#### Gorczynski, Wl.

... Srednie pietnastoletnie (1887-1901) opadów i temperatury dla okrugów cukrowniczych. Warszawa. 1908. 9 p. 4°. (Wiadomosc z Biura meteorologicznego przy Muzeum w Warszawie.)

... O stosunkach klimatycznych Egiptu i Sudanu Wschodniego. Warszawa. 1909. 39 p. 4°. (Odbitka z "Wiadomosci Matematycznych." T. 13.)

... O wartosciach piecioletnich opadów i temperatury dla okrugów cukrowniczych w okresie 1902-7. Warszawa. 1908. 7 p. (Wiadomosc z Biura meteorologicznego przy Muzeum a Warszawie.)

#### Great Britain. Meteorological office.

The observer's handbook ... 1909. London. 1909. 154 p. 8°.

#### Guilbert, Gabriel.

Nouvelle méthode de prévision du temps. Paris. 1909. xxxviii, 343 p. 8°.

#### Guzzanti, C.

... Le diverse forme delle nubi ... Padova. 1904. 20 p. f°.

#### Hall, A. D.

The soil. An introduction to the scientific study of the growth of crops. 2d ed., rev. and enl. New York. 1908. xv, 311 p. 8°.

#### Hall, Maxwell.

4th report on earthquakes in Jamaica. Jamaica. 1909. 23 p. f°.

#### Hahn, Martin.

... Die Bestimmung und meteorologische Verwertung der Keimzahl in den höheren Luftschichten. Nach von Luftballon aus angestellten Beobachtungen. (Abdruck aus dem Centralblatt f. Bakteriologie, Parasitenkunde u. Infektionskrankheiten. 1. Abt. 51. Bd. 1909. Heft 2. p. 97-114.)

#### Hegyfoky, Kabos v.

Die Niederschlagsverhältnisse im Mármaroser Komitat. (Separatabdruck aus den "Földrajzi Közlemenyek" Jahrg. 1908. Bd. 36. Heft 6-7.)

#### Hesse. Grossherzogliches hydrographisches Bureau.

Anleitung für die Regen-Stationen im Grossherzogtum Hessen. Darmstadt. 1909. 13 p. 8°.

#### Hildebrandson, H. H.

Om den allmänna cirkulationen i atmosfären. (Nordisk tidskrift för vetenskap konst & industri. 1908. Sjunde häftet. Stockholm. [1908.] p. 491-521. 8°.)

#### Holtmark, G.

Om varmens og nedborens indflydelse paa udbyttet af akerveksterne. (Foredrag ved den 3die Nordiske landbrugskongres i Kristiania 1907. 30, 3 p.)

#### International meteorological committee.

... Report of proceedings at a meeting of the Commission for maritime weather signals, held in London on June 22-25, 1909. London. 1909. 8, 21 p. 8°.

... Report of proceedings at a meeting of the Commission for weather telegraphy, held in London on June 21-24, 1909. London. 1909. 33 p. 8°.

#### Jans, C. de.

Les tentatives d'explication de la foudre globulaire. Bruxelles. 1909. 46 p. 8°. (Extrait du Bulletin de la Société belge d'électriciens. Mars 1909.)

#### Johansson, Osc. V.

Berättelse över Finska vetenskaps-societetens meteorologiska centralanstalts verksamhet under år 1907. (Öfversigt af Finska vetenskaps-societetens förhandlingar. L. 1907-1908. N:o 16.)

Kertomus suomen tiedeseuran meteorologisen keskuslaitoksen toiminnasta v. 1907. (Öfversigt af Finska vetenskaps-societetens förhandlingar. L. 1907-1908. N:o 16.)

Den normala nederbörden och torkan år 1908 i Finland. 26 p. 8°. Sonnenscheindauer und Bewölkung in Helsingfors. (Öfversigt af Finska vetenskaps-societetens förhandlingar. L. 1907-1908. N:o 13.)

... Temperatur- und Niederschlagstafeln für 8 finnische Orte. Helsingfors. 1909. 23 p. f°. (Sonderabdruck aus Meteorologisches Jahrbuch für Finland. Jahrg. 1902. Wissenschaftliche Beilage.)

#### Jordan, Ch.

... La propagation des ondes sismiques. (Extrait de la Revue générale des sciences des 15 et 30 juillet 1907. Paris. 21 p.)

#### Koutchino. Institut aérodynamique.

Bulletin ... Fasc. 2. Moscou. 1909. 127 p. 4°.

#### Mizusawa international latitude observatory.

Annual report 1908. Mizusawa. 1909. 37 p. 4°.

#### Moscow. Agricultural institute. Meteorological observatory.

Observations ... 1907. Moscow. 1909. xxxv, 72 p. 4°.

#### Natal. Government astronomer.

Report ... 1908. Pietermaritzburg. 1909. 15 p. f°.

#### Nigeria. Medical department.

Annual report 1908. Zungeru. 10 p. f°. [Contains meteorological return.]

#### Nimführ, R.

... Die Luftschiffahrt. Leipzig. 1909. 152 p. 12°.

#### Norges landbrugshoiskoles Beretning.

Veiret ... 1904, 1905, 1907. Kristiania. 1905-1908. 8°.

#### Osaka (Japan). Meteorological observatory.

Annual report 1908. Pt. 2. Osaka. 1909. 8°.

#### Pabst, Wilhelm.

... Allgemeine Witterungskunde. Berlin. n. d. 95 p. 16°. (Hillgers illustrierte Volksbücher. Band 6.)

#### Phillips, W. F. R.

Seasonal influence on suicide. [Reprinted from Monthly cyclopaedia and medical bulletin. Sept., 1909. 7 p.]

#### Prague. K. k. Sternwarte.

Magnetische und meteorologische Beobachtungen ... 1908. 69. Jahrg. Prag. 1909. 47 p. f°.

#### Prussia. Königlich preussisches meteorologisches Institut.

... Ergebnisse Beobachtungen an den Stationen II. und III. Ordnung im Jahre 1904. Berlin. 1909. xviii, 77-206 p. (Veröffentlichungen ... Nr. 210.)

... Ergebnisse der Gewitter-Beobachtungen in den Jahren 1906 und 1907. Berlin. 1909. lix, 64 p. f°. (Veröffentlichungen ... Nr. 209.)

- ... Ergebnisse der magnetischen Beobachtungen in Potsdam im Jahre 1906. Berlin. 1909. 70 p. f°. (Veröffentlichungen... Nr. 211.)
- ... Ergebnisse der meteorologischen Beobachtungen in Potsdam im Jahre 1907. Berlin. 1909. viii, 106 p. f°. (Veröffentlichungen... Nr. 208.)
- Same. 1908. Berlin. 1909. xxxvi, 94 p. f°. (Veröffentlichungen... Nr. 213.)
- ... Ergebnisse der Niederschlags-Beobachtungen im Jahre 1907. Berlin. 1909. xxxiv, 161 p. f°. (Veröffentlichungen... Nr. 212.)
- Ricco, A.** Il terremoto e maremoto del 28 dicembre 1908. (Dal Bollettino dell' Accademia gioenia di scienze naturali in Catania. Fasc. 8, Serie 2-Maggio 1909. 8 p.)
- Schultheiss, [Christoph].** Die Temperaturverhältnisse im Grossherzogtum Baden. Karlsruhe. 1909. 38 p. 8°.
- Schwalbe, G.** ... Das Klima. Berlin. 1909. 36 p. 4°. (S. A. Landeskunde der Provinz Brandenburg... hrsg. von Ernst Friedel und Robert Mielke.)
- Scottish meteorological society.** Journal... v. 15. 3d ser. no. 26. Edinburgh. [1909.] 139 p. 4°.
- Shackleton, E. H.** The heart of the Antarctic. 2 v. Philadelphia. 1909. 4°.
- Spitaler, Rudolf.** ... Die periodischen Luftmassenverschiebungen und ihr Einfluss auf die Lagenänderungen der Erdachse (Breitenschwankungen). Gotha. 1901. 51 p. 4°. (Dr. A. Petermanns Mitteilungen aus Justus Perthes' Geographischer Anstalt... Ergänzungsheft Nr. 137.)
- Tacubaya. Observatorio astronomico nacional.** Anuario... 1910. Año 30. Mexico. 1909. 602 p. 16°.
- Thomson, J. J.** Elements of the mathematical theory of electricity and magnetism. Cambridge. 1909. vi, 550 p. 12°.
- Transvaal. Meteorological department.** Annual report 1909. Pretoria. 1909. iv, 122 p. f°.
- Vizagapatam (India). G. V. Juggarow observatory. (Daba gardens.)** ... Results of meteorological observations, 1904. Madras. n. d. 35 p. 8°.
- Warsaw. Centralna stacya meteorologiczna przy muzeum przemyslu i rolnictwa.** Sprawozdanie za rok 1906. Warszawa. 1909. 52 p. 4°.

#### RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.

C. FITZHUGH TALMAN, Librarian.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a —.

- American aeronaut.* New York. v. 1. October, 1909.
- Clayton, Henry Helm.** Atmospheric waves. p. 108. [Illustrated.]
- Very, Frank W.** Gibson's contribution to the theory of aerial viscosity. p. 125-129.
- Geographical journal.* London. v. 34. October, 1909.
- Mill, Hugh Robert.** Dr. Georg von Neumayer. p. 460-462.
- Journal of geography.* New York. v. 8. October, 1909.
- Brown, Robert M.** Indian summer. p. 25-31.
- Nature.* London. v. 81. October, 1909.
- Scientific studies of dew-points. p. 458-459.
- Researches on the action centers of the atmosphere. p. 467-468.
- The nature and extent of air polluted by smoke. p. 468-469.
- Royal meteorological society. Quarterly journal.* v. 35. October, 1909.
- Rawson, H. E.** The anticyclonic belt of the northern hemisphere. p. 233-248.
- Walter, Albert.** On errors of estimation in thermometric observations. p. 249-257.
- Mossman, R. C.** The interdiurnal variability of temperature in antarctic and subantarctic regions. p. 259-274.
- Schmidt, W. & Gold, Ernest.** Testing of registering balloon apparatus at low temperatures. p. 275-280.
- Snowstorms and parapets on buildings. p. 280.
- Bonacina, L. C. W.** A plea for the use of freely-exposed thermometers in addition to sheltered ones. p. 281-288.
- The meteorological club. p. 296. [A dining club in the Royal meteorological society.]

- Archer, Harold.** Cricket match on the ice at Ely during the great frost of February 1855. p. 296-298.
- Russell, Spencer C.** Observations of sheet lightning at Epsom, August 8, 1909. p. 298-299.
- Balloon ascent in a snow-storm. p. 299-300.
- Hands, Alfred.** Ball lightning. p. 301-302. [Discredits the existence of ball lightning, correctly so called.]
- Royal society. Proceedings.* London. ser. A. v. 81. 1908.
- Nicholson, J. W.** On the reflection of waves from a stratum of gradually varying properties, with application to sound. p. 286-299. [Discusses the reflection of sound from a fog, and the upward propagation of sound in the atmosphere.]
- Scientific American.* New York. v. 101. 1909.
- McClure, Frank.** Open-air orchard heating in Colorado. p. 260-261. (Oct. 9.) [Illustrated.]
- Sounding the ocean of air above us. Atmospheric exploration. p. 392-393; 399-401. (Nov. 27.) [Illustrated.]
- Scientific American supplement.* New York. v. 68. 1909.
- Zehnder, L.** Lightning and the airship. The dangers of atmospheric electricity in aeronautics. p. 321. (Oct. 9.)
- Fournier, Lucien.** The aerodynamic institute of Koutchino. Experimental aids to the aeronaut. p. 244-246. (Oct. 16.) [Illustrated.]
- Espitalier, G.** Houses that can not be shaken down. Building methods in earthquake regions. p. 251. (Oct. 16.) [Illustrated.]
- Patterson, Samuel K.** The measurement of humidity. The instruments and methods employed. p. 326-327. (Nov. 20.)
- Symons's meteorological magazine.* London. v. 44. 1909.
- B., L. C. W.** Marsh vegetation and evaporation. p. 167-168. (October.) [Abstract of paper by R. H. Yapp.]
- B., L. C. W.** The rainfall of southern Rhodesia. p. 168-169. (October.)
- New meteorological station at Hampstead. p. 181. (November.) [Highest meteorological station in London.]
- Curtis, R. H.** The standardization of sunshine recorders. p. 187-191. (November.)
- Annales de géographie.* Paris. 18 année. 15 novembre 1909.
- Schokalsky, J. de.** Le niveau des lacs de l'Asie centrale russe et les changements de climat. p. 407-415.
- Archives des sciences physiques et naturelles.* Genève. Tome 28. 15 oct., 1909.
- Billwiller, R.** La nécessité de protéger les pluviomètres des stations de montagne contre le vent. Modèle d'un pluviomètre à protection. p. 366-368.
- Ciel et terre.* Bruxelles. 30 année. 1 novembre 1909.
- Lagrange, E.** Le spectre du Brocken à Sart-lez-Spa. p. 411-414.
- Cosmos.* Paris. 58 année. 27 novembre 1909.
- Le spectre du Brocken en Belgique. p. 588.
- France. Académie des sciences. Comptes rendus.* Tome 149. 1909.
- Angot, Alfred.** La perturbation magnétique et l'aurore boréale du 25 septembre 1909. p. 577-578. (4 oct.)
- Hildebrandson, H. Hildebrand.** Quelques remarques sur les températures d'été dans diverses parties de l'Europe. p. 703-705. (26 oct.)
- Nature.* Paris. 37 année. 9 oct., 1909.
- Loisel, J.** La grêle. p. 298-301. [Illustrated.]
- Geographische Zeitschrift.* Leipzig. 15. Jahrgang. November, 1909.
- Müller, Rudolf.** Regenverteilung, Pflanzendecke und Besiedlung Ober-Guineas und des westlichen Sudan. p. 620-641.
- Globus.* Berlin. 11. Nov., 1909.
- Die klimatischen Unterschiede zwischen Talboden und Gehänge im Hochgebirge. p. 292. [Abstract of paper by H. Bach.]
- Himmel und Erde.* Berlin. 22. Jahrgang. Oktober, 1909.
- Gockel, A.** Ueber die Radioaktivität der Atmosphäre. p. 16-22.
- Illustrierte aeronautische Mitteilungen.* Strassburg. 17. Jahrgang. 17. Nov., 1909.
- Flemming, —.** Physiologische und physikalische Messungen und Beobachtungen bei einer Hochfahrt. p. 1019-1028.
- Meteorologische Zeitschrift.* Braunschweig. Band 26. Oktober, 1909.
- Dobrowolski, A.** Ueber neue Beobachtungen von Eiskristallen, welche die Haloerscheinungen bewirken. p. 433-437.
- Stentzel, Arthur.** Die Dämmerungsanomalien im Sommer 1908. p. 437-446.
- Kerner, Fritz von.** Die extremen thermischen Anomalien auf der Nordhemisphäre und ihre Bedeutung für die Frage der geologischen Polverschiebungen. p. 447-454.
- Kerner, Fritz von.** Schätzungen der mittleren Regenhöhe von Südamerika. p. 454-457.
- Schmidt, Wilhelm.** Ueber die Theorie der Wirkung der Glashäuser. p. 457-458. [Abstract of paper by R. W. Wood.]
- Gockel, A.** Ueber Kugelblitze. p. 458-459.
- J., v[on].** Meteorologische Beobachtungen in Nigeria im Jahre 1907. p. 460.
- Resultate der meteorologischen Beobachtungen auf der Insel St. Lucia (Kleine Antillen) im Jahre 1908. p. 461.
- Maurer, J.** Ueber die Mängel unserer Glaskugel-Sonnenscheinauto-graphen. p. 461-463. [Illustrated.]



- Resultate der meteorologischen Beobachtungen zu Ho-k'ieou in den Jahren 1906, 1907, und 1908. p. 463-464.
- H[ann], J[ulius]**. Meteorologische Beobachtungen bei der italienischen Legation in Addis Abeba und Addis Alem. p. 465-467. [Collected data, 1901-1907.]
- Resultate der meteorologischen Beobachtungen im französischen Sudan zu Fort Lamy (im Süden des Tschadsees). p. 468.
- Kerner, Fritz von**. Zur Kenntnis des jährlichen Temperaturganges auf der Südhemisphäre. p. 468-470.
- Kerner, Fritz von**. Kombinierte diagraphische und kartographische Darstellung der jährlichen Regenperiode. p. 470-472.
- Wegener, Alfred**. Zur Entstehung des Cumulus mammatus. p. 473-474.
- G. Claude: Ueber die Zusammensetzung der atmosphärischen Luft. p. 474-475.
- Resultate der meteorologischen Beobachtungen in der Magelhaenstrasse. p. 475.
- Petermanns Mitteilungen*. Gotha. 55. Band. 1909.
- Houtum-Schindler, A.** Klimatafeln aus Persien. p. 269-270.
- Physikalische Zeitschrift*. Leipzig. 10. Jahrgang. 10 November 1909.
- Kurz, K.** Die radioaktiven Stoffe in Erde und Luft als Ursache der durchdringenden Strahlung in der Atmosphäre. p. 834-845.
- Gockel, A.** Ueber die in der Atmosphäre vorhandene durchdringende Strahlung. p. 845-847.
- Schweidler, E. von**. Ueber den Einfluss des Standortes auf Messungen der Zerstreuung und Leitfähigkeit der Atmosphäre. p. 847-849.
- Wetter*. Berlin. 26. Jahrgang. Oktober 1909.
- Peppler, A.** Einfache Apparate zur Veranschaulichung meteorologischer Erscheinungen und Gesetze. p. 223-229.
- Peppler, W.** Die praktische Meteorologie im Dienste der Luftschiffahrt. p. 234-239.
- Woche*. Berlin. 11. Jahrgang. 1909.
- Archenhold, F. S.** Sonnenflecke, Nordlichter, und erdmagnetische Strömungen. p. 1687-1688. (2. Okt.)
- Assmann, Richard**. Luftschiffahrt und Wind. p. 1816-1818. [Mainly an abstract of a forthcoming collection of wind statistics for the German Empire, by the same author.]
- Zeitschrift für Gletscherkunde*. Berlin. Bd. 4. Okt. 1909.
- Keidel, H.** Ueber den Büsserschnee der argentinischen Anden. p. 31-66.
- Hemel en Dampkring*. Amsterdam. 7. Jahrgang. Okt. 1909.
- Everdingen, E. van**. Een waarneming van den halo van Hall. p. 81-82.
- Nell, Chr. A. C.** De bepaling van de ontwikkeling der halo's. p. 82-86.
- Russia. Académie impériale des sciences. Bulletin*. St. Pétersbourg. 6 sér. 15 Oct. 1909.
- Galitzin, B.** Zur Frage der Bestimmung des Azimuts des Epizentrums eines Bebens. p. 999-1012.

## CONDENSED CLIMATOLOGICAL SUMMARY.

## TEMPERATURE AND PRECIPITATION BY SECTIONS, AUGUST, 1909.

In the following table are given, for the various sections of the Climatological Service of the Weather Bureau, the average temperature and rainfall, the stations reporting the highest and lowest temperatures with dates of occurrence, the stations reporting the greatest and least monthly precipitation, and other data, as indicated by the several headings.

The mean temperatures for each section, the highest and

lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperature and precipitation are based only on records from stations that have ten or more years of observations. Of course the number of such records is smaller than the total number of stations.

Section.	Temperature—in degrees Fahrenheit.								Precipitation—in inches and hundredths.					
	Section average.	Departure from the normal.	Monthly extremes.						Section average.	Departure from the normal.	Greatest monthly.		Least monthly.	
			Station.	Highest.	Date.	Station.	Lowest.	Date.			Station.	Amount.	Station.	Amount.
Alabama.....	81.0	+ 1.3	Flomaton.....	108	18	Ashville.....	54	26	3.30	- 1.43	Cedar Bluff.....	9.70	Hamilton.....	0.68
Arizona.....	80.5	- 1.1	Pushmataha.....	118	2	Flagstaff, A.....	44	28	3.92	+ 1.49	Flagstaff, A.....	9.73	Buckeye.....	1.09
Arkansas.....	82.5	+ 3.0	Mohawk Summit.....	114	17	Bergman.....	47	30	1.27	- 2.21	Texarkana.....	4.86	Earl.....	0.00
California.....	72.1	- 0.2	Ozark.....	114	11	Beckwith.....	24	23	0.19	+ 0.06	Mammoth Tank.....	5.40	Many stations.....	0.00
Colorado.....	67.0	+ 1.5	Mammoth Tank.....	104	6	Breckenridge.....	31	15	2.97	+ 0.70	Wortman.....	9.07	Wray.....	0.30
Florida.....	81.9	+ 0.6	Las Animas.....	103	18	Bonifay.....	65	31	7.50	+ 0.12	Fort Myers.....	14.59	Fenholloway.....	1.75
Georgia.....	79.8	+ 0.4	Wausau.....	104	17	De Funiak Spring.....	65	10	4.53	- 1.05	Valona.....	15.34	Putnam.....	1.12
Hawaii.....	72.9	- 1.0	Bainbridge.....	94	25	Clayton.....	50	23	2.95	- 0.02	Hakalau, Hawaii.....	15.40	6 stations.....	0.00
Idaho.....	67.2	+ 1.0	Kihel, Maui.....	107	20	Humuula, Hawaii.....	36	1	0.56	- 0.02	Pocatello.....	3.07	2 stations.....	0.00
Illinois.....	77.1	+ 3.2	Glenns Ferry.....	105	28	Forney.....	22	28	2.32	- 0.99	Rockford.....	7.69	Carlyle.....	T.
Indiana.....	75.0	+ 1.6	Equality.....	105	28	Tiskilwa.....	42	29	2.97	- 0.39	Collegeville.....	6.97	Mount Vernon.....	0.14
Iowa.....	76.1	+ 4.3	Maseoutah.....	104	27	Yorkville.....	42	30	43	3 d't's	New Hampton.....	8.21	Fairfield.....	T.
Kansas.....	80.1	+ 2.8	Rome.....	104	28	3 stations.....	43	3 d't's	1.81	- 2.18	Emporia.....	5.57	Oketo.....	0.23
Kentucky.....	76.7	+ 1.0	Bedford.....	103	16	Washita.....	33	29	1.25	- 2.02	Maysville.....	8.89	Blandville.....	0.02
Louisiana.....	82.8	+ 1.4	Bloomfield.....	103	15	Blakeman.....	39	29	2.74	- 0.60	Burrwood.....	13.72	Farmerville.....	1.32
Maryland and Delaware.....	71.8	- 1.7	Ashland.....	114	17	Earlington.....	43	22	6.12	+ 1.55	Grantsville, Md.....	6.67	Darlington, Md.....	0.51
Michigan.....	69.0	+ 2.8	Calhoun.....	112	28	Baton Rouge.....	63	12	3.12	- 1.18	Highland.....	5.96	Benzonia.....	0.46
Minnesota.....	70.9	+ 4.3	Liberty Hill.....	112	18	Robeline.....	63	23	2.17	- 0.51	Leech Lake Dam.....	10.43	New London.....	1.01
Mississippi.....	82.0	+ 1.6	Minden.....	112	18	Deer Park, Md.....	33	23	4.54	+ 1.15	Bay St. Louis.....	13.58	Malone.....	T.
Missouri.....	79.5	+ 3.6	Coleman, Md.....	99	4	Roscommon.....	37	21	2.90	- 1.16	Mount Vernon.....	4.30	Several stations.....	0.00
Montana.....	65.6	+ 1.3	5 stations.....	98	1	Roscommon.....	37	21	0.55	- 3.16	Dirty Creek.....	3.18	4 stations.....	0.00
Nebraska.....	77.0	+ 3.9	Albert Lea.....	98	1	Hollock.....	34	31	0.85	- 0.32	Oakdale.....	5.34	Bridgeport.....	0.12
Nevada.....	70.9	+ 0.9	Winona.....	98	6	Rosau.....	34	29	2.02	- 0.99	Ely.....	2.43	6 stations.....	0.00
New England*.....	66.1	- 1.0	Port Gibson.....	107	18	Austin.....	57	31	0.48	- 0.10	Norwalk, Conn.....	6.23	Fairfield, Me.....	1.17
New Jersey.....	70.2	- 2.2	Dean.....	110	17	Amoret.....	40	30	2.86	- 0.68	Oceanic.....	12.94	Phillipsburg.....	1.41
New Mexico.....	71.3	+ 0.7	Troy.....	108	19	Bowen.....	14	28	3.08	+ 0.63	Harveys Upper R'ch.....	10.11	Orogrande.....	0.12
New York.....	66.4	- 0.6	Seward.....	108	15	Anoka.....	36	29	3.07	- 0.72	Searsdale.....	8.78	Avon.....	0.57
North Carolina.....	74.9	- 1.5	Carlin.....	112	17	Dutton.....	25	24, 25	5.81	- 0.47	Graham.....	9.63	Brewers.....	2.46
North Dakota.....	69.8	+ 2.9	W. Osage, N. H.....	100	25	3 stations.....	28	31	2.25	+ 0.29	Grafton.....	5.70	Donnybrook.....	T.
Ohio.....	71.9	+ 0.4	St. Johnsbury, Vt.....	100	8	Charlotteburg.....	34	31	3.56	+ 0.58	Milfordtown.....	8.78	New Waterford.....	0.76
Oklahoma.....	83.8	+ 3.3	Somerville.....	100	8, 9	Elizabethtown.....	37	31	1.24	- 1.78	Cache.....	4.47	Meeker.....	0.02
Oregon.....	64.5	- 1.2	Cliff.....	107	11, 12	Indian Lake.....	20	31	0.12	- 0.40	Headworks.....	1.05	Many stations.....	0.00
Pennsylvania.....	69.4	- 0.4	Addison, Port Jervis.....	102	8	Dushore.....	34	15	2.31	- 1.98	West Newton.....	7.76	Clarion.....	0.12
Porto Rico.....	78.4	- 1.0	Lexington.....	100	29	Jayuya, Las Marias.....	60	5 d't's	14.94	+ 6.62	La Carmelita, B.....	27.34	Mayaguez.....	6.29
South Carolina.....	78.8	- 0.3	Coal Harbor.....	109	13	Cheraw.....	53	24	4.83	- 1.48	Georgetown.....	11.70	Newberry.....	1.61
South Dakota.....	74.9	+ 4.9	Waverly.....	96	27	Frederick.....	30	29	2.78	+ 0.68	Castlewold.....	7.59	Dowling.....	0.29
Tennessee.....	78.2	+ 1.9	Muskogee, Norman.....	114	17	Mountain City.....	38	23	2.70	- 1.47	Tazewell.....	10.96	Springville.....	0.03
Texas.....	84.2	+ 2.0	Pendleton.....	105	18	Plemons.....	51	25	2.17	- 0.41	Falfurrias.....	11.19	Texline.....	0.00
Utah.....	70.5	+ 0.5	3 stations.....	100	9	Seofield.....	28	7	3.02	+ 1.55	Emery.....	23.42	Lucin.....	0.21
Virginia.....	72.1	- 2.1	Yauco.....	96	21	Blacksburg.....	37	23	3.91	- 0.81	Danville.....	9.70	Lexington.....	0.98
Washington.....	64.2	- 2.1	Florence.....	104	1	Northport.....	26	28	0.37	- 0.24	Clearwater.....	4.28	21 stations.....	0.00
West Virginia.....	70.8	- 1.1	Tama.....	108	5	Bayard.....	37	22	3.03	- 0.39	Pickens.....	5.79	Robertsburg.....	0.81
Wisconsin.....	70.6	+ 3.0	Jackson.....	104	28	Prentice.....	30	29	3.71	+ 0.39	Delavan.....	9.80	Oconto.....	0.90
Wyoming.....	65.6	+ 2.7	5 stations.....	115	18	Soda Butte, Y.N.P.....	18	28	1.20	+ 0.04	Kirwin.....	3.64	3 stations.....	0.00

\*Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut.

{Other dates also.



TABLE I.—Climatological data for U. S. Weather Bureau stations, August, 1909.

Stations.	Elevation of instruments.			Pressure, in inches.		Temperature of the air, in degrees Fahrenheit.										Precipitation, in inches.			Wind.					Total snowfall.									
	Barometer above sea level, feet.	Thermometers above ground.	Anemometer above ground.	Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hrs.	Departure from normal.	Mean max. + mean min. ÷ 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Total.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.		Maximum velocity.	Miles per hour.	Direction.	Date.	Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness during daylight, tenths.	
New England.																																	
Eastport.	76	67	85	29.89	29.97	+ .01	63.4	+ 0.3	78	4	63	44	31	52	26	55	52	75	2.53	- 1.3	10	5,546	s.	38	ne.	18	7	13	11	5.2			
Greenville.	1,070	6		28.80	30.01		61.6	+ 0.5	89	8	74	23	31	47	42				3.60	- 1.6	14										6.4		
Portland, Me.	103	81	117	29.88	30.00	+ .02	61.2	- 0.0	94	25	74	45	31	58	32	59	55	72	1.68	- 1.9	6	6,207	nw.	32	nw.	27	16	7	8	4.3			
Concord.	288	70	79	29.70	30.01	+ .03	61.6	- 1.0	94	8	78	36	31	54	34				2.85	- 0.9	8	3,261	w.	23	sw.	27	13	12	6	4.7			
Burlington.	491	11	43	29.58	30.01	+ .04	65.2	- 0.9	92	8	76	38	31	55	33				2.83	- 1.2	13	6,620	s.	38	s.	31	6	14	11	6.1			
Northfield.	876	16	70	29.10	30.04	+ .05	61.4	- 1.5	99	25	74	31	31	49	38	56	54	79	2.53	- 1.4	11	5,019	s.	36	sw.	26	9	15	7	5.6			
Boston.	125	115	188	29.83	30.01	+ .02	63.4	+ 0.5	94	8	77	50	31	62	26	62	58	70	3.55	- 0.5	8	6,859	w.	35	ne.	17	12	12	7	5.1			
Nantucket.	12	14	90	29.99	30.00	+ .01	67.0	- 1.0	89	8	73	56	31	61	23	62	60	82	1.72	- 1.3	3	10,354	sw.	47	e.	17	13	9	9	5.0			
Block Island.	25	11	46	29.98	30.00	+ .01	63.0	- 0.7	87	8	73	58	22	63	19	63	61	82	1.71	- 1.8	7	10,954	sw.	54	e.	17	19	4	8	4.2			
Narragansett.	9						67.3	- 1.2	89	9	76	47	31	58	27				2.16		7												
Providence.	160	141	165	29.85	30.02	+ .03	65.7	- 2.3	95	8	78	47	31	59	29	61	56	68	2.50	- 1.5	7	6,293	nw.	29	nw.	27	11	12	8	5.2			
Hartford.	159	122	140	29.84	30.01	+ .02	65.6	- 0.3	93	8	79	46	31	58	30	61	58	73	3.35	- 1.2	7	4,696	n.	22	se.	16	7	14	10	5.9			
New Haven.	135	116	155	29.89	30.00	+ .01	65.8	- 1.3	93	8	78	49	31	60	27	61	57	70	3.49	- 1.5	8	6,365	n.	27	ne.	17	12	12	7	4.6			
Mid. Atlantic States.																																	
Albany.	97	102	115	29.91	30.01	+ .03	69.1	- 0.4	95	8	79	45	31	59	30	61	56	69	2.42	- 1.5	12	5,003	s.	30	se.	31	8	17	6	5.0			
Binghamton.	871	78	90	29.12	30.03	+ .04	65.6	- 1.9	94	8	78	38	31	54	39				2.52	- 0.8	7	3,743	n.	25	sw.	20	10	8	13	5.6			
New York.	314	103	350	29.86	30.01	+ .01	71.6	- 0.6	93	9	79	58	4	64	21	63	59	68	7.94	+ 3.4	9	7,610	nw.	40	ne.	17	13	10	8	4.8			
Harrisburg.	374	91	104	29.64	30.03	+ .02	72.0	- 0.1	96	9	81	52	23	62	34	62	56	61	0.81	- 3.4	7	4,360	w.	38	nw.	20	13	8	10	4.6			
Philadelphia.	117	116	184	29.91	30.03	+ .03	73.0	- 0.8	93	9	81	58	31	65	27	63	58	65	1.95	- 2.7	4	7,029	n.	32	n.	10	16	6	9	4.6			
Scranton.	895	111	119	29.18	30.03	+ .03	67.8	- 1.5	95	25	79	47	22	57	38	59	54	65	1.22	- 3.0	11	4,376	ne.	25	s.	31	13	8	10	4.7			
Atlantic City.	52	37	48	29.97	30.02	+ .03	73.9	- 1.7	86	10	77	55	5	65	28	65	62	75	2.95	- 1.4	5	5,973	sw.	38	se.	16	14	5	12	5.1			
Cape May.	17	48	52	30.02	30.04	+ .04	70.7	- 2.7	84	29	76	58	22	66	16	66	66	66	4.33	+ 0.1	7										4.3		
Baltimore.	123	100	113	29.89	30.02	+ .01	74.4	- 0.3	98	9	83	58	22	66	25	65	69	65	0.86	- 3.4	5	5,017	n.	21	n.	21	12	9	10	4.9			
Washington.	112	62	85	29.90	30.02	+ .01	73.0	- 1.5	95	9	83	53	23	63	30	65	61	71	2.27	- 2.1	12	4,037	n.	29	n.	16	13	5	4	5.3			
Cape Henry.	18	9	58	30.00	30.02	+ .02	74.6	- 2.3	93	29	81	60	24	68	23				3.91	- 2.2	9	8,904	ne.	45	n.	3	19	5	7	3.9			
Lynchburg.	631	83	88	29.31	30.04	+ .02	73.6	- 1.2	95	27	84	50	23	63	35	66	64	73	3.29	- 1.0	8	2,250	nw.	16	nw.	29	13	12	6	5.0			
Mount Weather.	1,725	10	54	29.25	30.02	+ .01	68.8	- 0.6	90	9	76	52	22	61	29	61	58	75	2.64	- 1.0	10	7,343	nw.	33	nw.	29	13	11	7	4.5			
Norfolk.	91	102	111	29.93	30.03	+ .03	74.6	- 2.1	91	29	82	69	23	68	25	65	66	78	5.81	- 0.2	10	5,590	ne.	26	n.	3	14	10	7	4.4			
Richmond.	144	145	153	29.83	30.03	+ .02	74.2	- 3.3	93	29	83	58	23	65	30				4.01	- 0.4	11	4,067	se.	33	nw.	25	9	14	8	4.9			
Wytheville.	2,293	49	47	27.71	30.02	+ .01	63.1	- 1.4	89	27	80	43	23	58	37	64	62	86	2.49	- 2.0	10	2,433	nw.	23	w.	16	19	9	3	2.8			
S. Atlantic States.																																	
Asheville.	2,255	53	75	29.75	30.03	+ .01	71.6	- 1.1	90	28	82	47	23	61	33	65	64	85	4.58	- 0.2	12	3,712	se.	30	nw.	29	12	12	7	4.3			
Charlotte.	773	68	76	29.21	30.03	+ .01	76.0	- 0.6	95	29	85	59	22	67	26	68	66	76	5.16	- 0.4	11	3,673	ne.	36	s.	15	13	11	7	4.8			
Hatteras.	11	12	47	30.00	30.01	+ .01	77.4	- 0.8	83	10	83	68	23	72	15	73	71	83	4.99	- 0.8	12	7,457	ne.	31	n.	29	20	9	2	3.3			
Manteo.	12	12	46				75.2	- 0.8	85	26	82	57	24	69					5.69	- 0.2	8												
Raleigh.	376	103	110	29.62	30.01	+ .03	75.4	- 1.4	95	29	84	58	24	67	25	68	65	78	4.40	- 1.5	8	4,415	ne.	31	n.	29	14	7	11	5.0			
Wilmington.	78	81	91	29.93	30.01	+ .01	77.8	+ 0.2	91	10	85	60	23	70	22	72	70	84	4.03	- 2.4	12	4,582	ne.	24	sw.	2	10	15	6	4.9			
Charleston.	48	14	92	29.95	30.03	+ .01	83.2	- 0.1	94	17	86	71	19	74	23	75	73	83	7.85	+ 0.9	14	6,807	ne.	50	nw.	16	10	15	6	5.0			
Columbia, S. C.	351	41	57	29.63	30.03	+ .01	79.1	- 0.4	98	29	89	63	24	69	28	71	68	76	4.18	- 2.6	9	4,014	ne.	29	ne.	6	10	15	6	5.0			
Augusta.	180	89	97	29.81	30.00		79.8	+ 0.9	95	29	89	63	25	71	25	72	69	78	4.90	- 0.7	10	3,645	ne.	36	ne.	27	13	13	5	4.5			
Savannah.	65	81	89	29.93	30.03	+ .01	83.4	+ 1.0	95	17	87	69	25	73	22	74	72	84	8.34	+ 0.8	14	7,044	ne.	40	ne.	31	9	12	10	5.4			
Jacksonville.	43	93	129	29.93	29.98	+ .03	81.7	+ 0.6	97	17	89	71	19	75	22	76	74	84	5.18	- 1.0	10	5,678	sw.	46	nw.	19	7	1	5	5.4			
Florida Peninsula.																																	
Jupiter.	28	10	48	29.92	29.95	+ .05	81.7	- 0.2	95	19	88	72	27	75	21	77	75	81	4.53	- 1.3	20	8,668	se.	42	sw.	16	6	22	3	5.8			
Key West.	22	10	53	29.92	29.94	+ .01																											

TABLE I.—Climatological data for U. S. Weather Bureau stations, August, 1909—Continued.

Stations.	Elevation of instruments.			Pressure, in inches.		Temperature of the air, in degrees Fahrenheit.										Precipitation, in inches.			Wind.			Total snowfall.							
	Barometer above sea level, feet.	Thermometers above ground.	Anemometer above ground.	Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hrs.	Departure from normal.	Mean max. + mean min. + 2	Departure from normal.	Maximum.	Date.	Mean minimum.	Date.	Mean minimum.	Greatest daily range.	Mean wet thermometer.	Mean temperature of dew-point.	Mean relative humidity, per cent.	Total.	Departure from normal.	Days with 01, or more.	Total movement, miles.		Prevailing direction.	Maximum velocity.	Date.	Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness during daylight, tenths.
Upper Lake Region.																													
Alpena.	609 13	92	29.38	30.04	++	.04	63.6	+ 2.0	93	24 77	42	21	58	29	60	57	73	7.8	2.00	- 0.1	12	7,172	nw.	30	31	8	18	5	5.1
Escanaba.	612 40	82	29.38	30.03	++	.04	66.7	+ 2.2	85	7 74	40	31	59	26	62	59	77	1.48	- 2.1	12	6,554	s.	32	31	6	18	14	6.2	
Grand Haven.	632 54	92	29.36	30.02	++	.03	68.9	+ 1.1	85	8 77	45	30	61	26	63	60	72	3.24	+ 0.7	9	7,081	e.	29	31	16	9	6	4.1	
Grand Rapids.	707 127	162	29.28	30.04	++	.04	71.7	+ 1.7	92	7 82	46	30	61	30	63	60	72	4.39	+ 1.8	10	6,174	e.	35	31	11	11	9	5.2	
Houghton.	685 66	74	29.29	30.01	++	.04	66.2	+ 2.9	90	27 74	44	30	58	35	60	57	76	1.58	- 1.3	12	4,467	e.	22	31	10	12	9	5.2	
Marquette.	734 77	116	29.24	30.03	++	.05	65.8	+ 2.3	92	6 73	44	30	59	28	60	57	76	1.34	- 1.5	13	6,728	nw.	40	31	10	12	9	5.4	
Port Huron.	638 70	120	29.34	30.03	++	.05	69.4	+ 2.1	94	25 78	48	30	60	28	62	59	72	2.23	+ 0.4	9	6,695	nw.	36	31	12	8	11	5.4	
Sault Sainte Marie.	614 40	61	29.36	30.04	++	.03	64.6	+ 4.0	90	6 74	40	30	55	34	59	56	78	3.49	+ 0.4	8	5,226	ne.	39	31	12	8	11	5.6	
Chicago.	823 140	310	29.17	30.04	++	.04	74.8	+ 3.6	93	8 81	59	31	69	21	68	65	75	6.20	+ 3.3	10	7,951	ne.	37	31	14	12	5	4.0	
Milwaukee.	641 122	139	29.32	30.05	++	.05	71.9	+ 3.2	92	8 78	49	31	65	25	65	62	74	3.18	+ 0.4	8	6,537	ne.	32	31	18	10	3	3.2	
Green Bay.	617 49	86	29.35	30.01	++	.02	71.4	+ 4.4	94	24 81	46	31	62	30	63	60	72	1.24	- 1.9	8	6,084	se.	35	31	7	12	12	6.3	
Duluth.	1,133 11	47	28.80	30.00	++	.03	64.6	+ 0.3	84	15 72	41	31	57	24	61	59	86	4.91	+ 1.4	10	7,944	se.	43	31	7	12	5	5.7	
North Dakota.																													
Moorhead.	940 8	57	28.96	29.96	++	.00	70.8	+ 4.9	92	27 82	40	29	59	33	65	62	80	3.91	+ 0.8	11	4,981	se.	28	31	23	4	4	2.6	
Bismarck.	1,674 8	57	28.21	29.96	++	.02	71.4	+ 3.3	99	5 85	38	29	58	48	63	59	71	4.77	+ 2.8	13	7,116	e.	44	31	4	18	10	3.3	
Devils Lake.	1,482 11	44	28.39	29.94	++	.04	67.4	+ 2.3	90	2 80	39	31	55	36	60	57	74	3.60	+ 0.8	10	7,247	se.	46	31	14	13	4	3.9	
Williston.	1,872 14	56	27.96	29.89	++	.04	68.6	+ 0.7	99	20 84	37	28	53	46	59	52	58	0.22	- 1.1	4	5,863	se.	48	31	27	10	11	4	3.6
Upper Miss. Valley.																													
Minneapolis.	918 102	208	29.10	29.99	++	.02	73.8	+ 3.7	93	2 83	48	31	65	31	65	61	70	2.09	- 0.6	13	8,034	s.	32	31	15	8	8	4.2	
St. Paul.	837 171	179	29.10	29.99	++	.01	74.1	+ 4.1	94	2 83	48	31	64	33	65	61	70	2.89	- 0.6	11	6,648	s.	38	31	28	13	15	3	3.9
La Crosse.	714 11	45	29.24	29.99	++	.01	74.1	+ 3.0	91	2 83	47	31	64	33	65	61	72	87.6	+ 5.4	11	3,154	s.	14	31	21	14	8	9	4.4
Madison.	974 70	78	29.00	30.03	++	.01	72.6	+ 3.0	91	8 82	48	31	64	26	65	61	72	4.39	+ 1.2	8	5,460	ne.	26	31	13	13	5	4.5	
Charles City.	1,015 10	49	29.85	30.00	++	.03	73.7	+ 3.0	93	2 85	44	29	62	34	67	64	78	6.88	+ 3.5	10	3,866	e.	25	31	15	15	9	7	4.2
Davenport.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Des Moines.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Des Moines.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Dubuque.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30	68	64	68	2.34	- 1.3	5	3,870	sw.	32	31	17	11	9	3	3.4
Keokuk.	696 71	79	29.36	30.01	++	.03	77.3	+ 4.3	96	14 88	51	29	67	30															



TABLE I.—Climatological data for U. S. Weather Bureau stations, August, 1909—Continued.

Stations.	Elevation of instruments.			Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.							Precipitation, in inches.				Wind.				Total snowfall.										
	Barometer above sea level, feet.	Thermometers above ground.	Anemometer above ground.	Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hrs.	Departure from normal.	Mean max. + mean min. ÷ 2.	Departure from normal.	Maximum.	Date.	Mean minimum.	Date.	Mean minimum.	Greatest daily range.	Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Total.	Departure from normal.	Days with .01, or more.	Total movement, miles.		Prevailing direction.	Maximum velocity.		Date.	Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness during daylight, tenths.		
																								Miles per hour.	Direction.							
N.P. Coast Reg.—Con.																																
Port Crescent.....	259	8	53	29.82	30.11	+ .09	53.2	- 3.0	71	28	61	38	21	45	28	1.34	+ 0.6	5	3,650	nw.	17	nw.	19	9	18	4	4.8					
Seattle.....	123	185	224	29.94	30.07	+ .07	61.6	- 1.5	79	7	70	51	16	53	28	0.27	- 0.2	4	5,258	n.	27	sw.	26	12	11	8	4.7					
Tacoma.....	213	113	120	29.81	30.03	+ .01	61.6	- 1.4	79	18	71	47	16	52	29	0.33	- 0.4	4	4,160	n.	22	sw.	14	16	11	4	3.8					
Tatoosh Island.....	86	7	57	29.97	30.07	+ .07	54.4	- 0.9	64	28	58	48	31	51	13	2.97	+ 0.9	14	7,537	s.	52	s.	25	8	9	14	6.1					
Portland, Oreg.....	153	68	106	29.87	30.03	+ .02	65.0	- 0.9	91	18	77	46	5	53	34	0.05	- 0.6	1	4,615	nw.	26	e.	28	19	11	1	2.7					
Roseburg.....	510	9	57	29.47	30.02	+ .02	65.0	- 1.2	96	18	81	41	27	49	48	0.05	- 0.3	0	2,795	nw.	16	n.	30	21	7	3	2.3					
Mid. Pac. Coast Reg.																																
Eureka.....	62	62	80	29.96	30.03	+ .03	54.8	- 1.0	69	14	59	46	22	51	16	0.00	- 0.1	0	4,702	n.	39	n.	26	7	14	10	5.8					
Mount Tamalpais.....	2,375	11	18	27.50	29.93	-.00	70.4	- 0.8	88	18	78	45	31	63	31	0.00	0.0	0	8,001	nw.	66	nw.	22	31	0	0	0					
Point Reyes Light.....	490	7	18	29.39	29.90	-.01	62.9	- 0.9	69	17	57	47	18	49	18	0.00	0.0	0	16,993	nw.	54	nw.	22	11	8	12	5.5					
Red Bluff.....	332	50	56	29.50	29.84	-.02	79.2	- 1.8	102	18	95	55	23	63	38	0.00	0.0	0	2,886	se.	15	n.	27	31	0	0	0.3					
Sacramento.....	69	106	117	29.79	29.86	+ .01	71.8	- 0.3	99	25	88	50	10	56	39	0.00	0.0	0	6,295	s.	24	sw.	1	30	1	0	0.3					
San Francisco.....	155	200	204	29.77	29.94	+ .02	57.4	- 0.6	82	16	64	49	9	51	30	0.00	0.0	0	8,587	sw.	34	sw.	4	16	10	5	3.9					
San Jose.....	141	12	110	29.78	29.93	-.01	64.6	- 2.1	93	25	80	43	23	50	32	0.00	0.0	0	4,397	nw.	20	se.	31	26	5	0	2.0					
Southeast Farallon.....	30	9	17	29.93	29.96	-.01	53.0	- 0.5	59	11	55	48	8	51	7	0.00	0.0	0	11,888	nw.	46	nw.	26	13	5	13	5.2					
S. Pac. Coast Reg.																																
Fresno.....	330	67	70	29.50	29.84	+ .02	80.7	- 0.5	106	4	99	52	23	63	43	0.00	0.0	0	4,261	w.	17	w.	5	30	1	0	0.8					
Los Angeles.....	338	159	191	29.52	29.88	-.00	70.6	- 2.0	101	29	82	52	25	60	33	0.00	0.0	0	3,966	sw.	19	sw.	11	25	5	1	1.6					
San Diego.....	87	94	102	29.79	29.88	-.01	68.6	- 0.1	93	30	74	59	10	63	25	0.00	0.0	0	4,404	nw.	23	se.	30	26	4	1	2.1					
San Luis Obispo.....	201	47	54	29.72	29.94	-.00	63.0	- 0.5	89	18	76	43	11	50	38	0.00	0.0	0	3,110	nw.	18	n.	23	24	7	0	2.7					
West Indies.																																
Grand Turk.....	11	6	20																													
San Juan.....	82	48	90	29.88	29.97	-.00	79.4	- 0.8	88	19	85	71	4	74	15	10.29	+ 4.4	20	8,142	e.	42	e.	22	8	14	9	5.7					
Panama.																																
Christobal.....	17	5	60	29.85	29.87	-.02	78.7	- 0.8	88	25	84	71	8	73	16	15.42	.....	27	4,093	se.	26	nw.	25	1	18	12	7.0					
Culebra.....	172	4	30	29.46	29.87	-.01	78.4	- 0.8	91	30	86	68	15	71	19	8.32	.....	23	3,417	nw.	25	sw.	17	1	21	9	7.0					
Ancon.....	92	6	69	29.77	29.86	-.01	78.8	- 0.8	90	31	85	70	15	72	17	6.84	.....	24	4,204	nw.	23	nw.	3	0	11	20	8.0					
Alhajuela.....																																
Bohio.....																																
Gatun.....																																

† Below sea level.

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, for storms in which the rate of fall equaled or exceeded 0.25 in any 5 minutes, or 0.80 inch in 1 hour, during August, 1909, at all stations furnished with self-registering gages.

Stations.	Date.	Total duration.		Total amount of precipitation.	Excessive rate.		Amount before excessive began.	Depths of precipitation (in inches) during periods of time indicated.															
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.		
Abilene, Tex.	9			0.26																		0.25	
Albany, N. Y.	5			0.90																		0.19	
Alpena, Mich.	25-26			0.34																		0.24	
Amarillo, Tex.	7			0.32																		0.32	
Anniston, Ala.	5	1:05 p.m.	2:00 p.m.	0.47	1:28 p.m.	1:45 p.m.	0.04	0.20	0.32	0.38	0.41												
Asheville, N. C.	15	9:30 p.m.	11:30 p.m.	1.10	9:50 p.m.	10:05 p.m.	0.02	0.11	0.27	0.62													
Atlanta, Ga.	2	9:50 a.m.	4:00 p.m.	1.77	10:28 a.m.	11:05 a.m.	0.01	0.17	0.30	0.46	0.64	1.15	1.41	1.50	1.54								
Do.	11	12:12 p.m.	1:35 p.m.	1.01	12:14 p.m.	1:08 p.m.	0.01	0.22	0.30	0.31	0.32	0.53	0.66	0.70	0.73	0.73	0.83	0.95					
Atlantic City, N. J.	4			2.40																			
Augusta, Ga.	2	12:42 p.m.	2:45 p.m.	1.21	12:43 p.m.	1:16 p.m.	0.01	0.10	0.23	0.63	0.93	0.99	1.06	1.11								0.64	
Do.	27	4:48 p.m.	5:25 p.m.	0.56	4:52 p.m.	5:03 p.m.	0.02	0.26	0.50	0.53													
Baker City, Oreg.	20			0.01																		T.	
Baltimore, Md.	16			0.69																		0.19	
Bentonville, Ark.	28			0.33																		0.28	
Binghamton, N. Y.	20	2:45 p.m.	3:30 p.m.	0.47	3:04 p.m.	3:23 p.m.	0.01	0.13	0.27	0.38	0.44												
Birmingham, Ala.	6			0.74																		0.26	
Bismarck, N. Dak.	9-10	8:15 p.m.	D. N.	3.69	10:53 p.m.	11:41 p.m.	0.04	0.14	0.47	0.92	1.20	1.47	1.89	2.40	2.73	2.94	2.99						
Block Island, R. I.	17			1.14																		0.20	
Boise, Idaho.	9			0.01																		0.01	
Boston, Mass.	17			1.92																		0.40	
Buffalo, N. Y.	16	12:40 a.m.	2:10 a.m.	0.67	1:14 a.m.	1:39 a.m.	0.12	0.05	0.19	0.38	0.49	0.54											
Burlington, Vt.	26			1.18																		0.50	
Cairo, Ill.	6			0.01																		0.01	
Canton, N. Y.	29			1.04																		0.51	
Charles City, Iowa.	12-13	11:20 p.m.	3:00 a.m.	1.39	11:24 p.m.	11:54 p.m.	0.01	0.16	0.36	0.51	0.80	0.99	1.07										
Do.	15	3:43 p.m.	4:31 p.m.	1.02	3:52 p.m.	4:28 p.m.	0.01	0.15	0.51	0.70	0.70	0.71	0.98	1.01									
Do.	9	7:18 a.m.	11:30 a.m.	1.90	8:47 a.m.	9:57 a.m.	0.09	0.27	0.32	0.35	0.39	0.40	0.41	0.47	0.51	0.56	0.83	1.17					
Charleston, S. C.	16	3:52 p.m.	6:57 p.m.	1.25	3:57 p.m.	4:22 p.m.	0.01	0.11	0.37	0.59	0.75	0.92											
Do.	19	12:11 p.m.	2:15 p.m.	2.22	12:31 p.m.	1:30 p.m.	0.01	0.16	0.40	0.73	1.08	1.39	1.56	1.80	1.87	1.90	1.94	2.11					
Charlotte.	2-3	D. N.	7:00 a.m.	2.22	4:26 a.m.	5:04 a.m.	0.34	0.09	0.19	0.28	0.45	0.57	0.64	0.70	0.75								
Do.	15-16	9:55 p.m.	D. N.	0.80	11:25 p.m.	11:52 p.m.	0.04	0.09	0.22	0.27	0.39	0.62	0.68										
Chattanooga, Tenn.	2			0.51																		0.51	
Cheyenne, Wyo.	23			0.47																		0.31	
Chicago, Ill.	14	3:00 a.m.	8:57 a.m.	3.44	5:08 a.m.	5:43 a.m.	0.25	0.21	0.60	0.78	0.94	1.08	1.18	1.33									
Do.	27	12:57 p.m.	2:50 p.m.	1.22	1:08 p.m.	1:48 p.m.	0.19	0.11	0.28	0.51	0.61	0.64	0.78	0.92	0.99	1.38	1.41	1.53	1.64				
Cincinnati, Ohio.	4	10:48 a.m.	12:45 p.m.	0.88	11:15 a.m.	11:30 a.m.	0.25	0.16	0.35	0.43													
Cleveland, Ohio.	13			0.83																		0.36	
Columbia, Mo.	6			0.06																		0.04	
Columbia, S. C.	6	5:20 p.m.	8:50 p.m.	1.27	5:29 p.m.	5:59 p.m.	0.01	0.32	0.57	0.62	0.75	0.93	1.02										
Do.	29	12:30 a.m.	D. N.	1.33	1:00 a.m.	1:53 a.m.	0.06	0.06	0.15	0.24	0.30	0.40	0.49	0.55	0.65	0.77	0.84	0.93					
Columbus, Ohio.	15	10:30 a.m.	11:25 a.m.	0.83	10:34 a.m.	11:15 a.m.	0.01	0.14	0.21	0.46	0.57	0.59	0.62	0.65	0.78	0.82							
Concord, N. H.	17			1.27																		0.46	
Concordia, Kans.	28			0.26																		0.11	
Corpus Christi, Tex.	9	8:48 a.m.	9:32 a.m.	0.74	8:58 a.m.	9:18 a.m.	0.02	0.11	0.42	0.65	0.71												
Do.	22	11:26 a.m.	12:21 p.m.	0.54	11:43 a.m.	12:13 a.m.	0.02	0.06	0.16	0.18	0.25	0.40	0.51										
Davenport, Iowa.	27	6:20 a.m.	9:45 a.m.	0.99	8:53 a.m.	9:28 a.m.	0.23	0.09	0.24	0.30	0.41	0.48	0.57	0.75									
Del Rio, Tex.	28			0.26																		0.24	
Denver, Colo.	10	5:50 p.m.	7:35 p.m.	0.60	5:58 p.m.	6:16 p.m.	0.01	0.15	0.32	0.42	0.50												
Des Moines, Iowa.	22			0.11																		0.05	
Detroit, Mich.	15	5:22 p.m.	5:42 p.m.	0.47	5:27 p.m.	5:40 p.m.	0.01	0.17	0.41	0.46													

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, etc.—Continued.

[illegible]



TABLE II.—Accumulated amounts of precipitation for each 5 minutes, etc.—Continued.

Stations.	Date.	Total duration.		Total amount of precipitation.	Excessive rate.		Amount before excessive began.	Depths of precipitation (in inches) during periods of time indicated.															
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.		
Portland, Me.	26			0.22														0.14					
Portland, Oreg.	23			0.05														0.05					
Providence, R. I.	17			1.47														0.31					
Pueblo, Colo.	18			0.59														0.30					
Raleigh, N. C.	1-2	4:50 p. m.	11:40 a. m.	2.10	6:27 p. m.	6:41 p. m.	0.15	0.17	0.30	0.38													
Rapid City, S. Dak.	31			0.09														0.09					
Red Bluff, Cal.	†																						
Reno, Nev.	31			0.05														0.04					
Richmond, Va.	1	6:12 a. m.	7:50 a. m.	0.77	6:30 a. m.	6:50 a. m.	0.10	0.10	0.26	0.46	0.58												
Rochester, N. Y.	16			0.93														0.62					
Roseburg, Oreg.	14			T.														T.					
Roswell, N. Mex.	20	9:05 p. m.	11:55 p. m.	1.23	9:07 p. m.	9:32 p. m.	0.01	0.19	0.35	0.58	0.84	0.92											
Sacramento, Cal.	†																						
St. Louis, Mo.	16			0.25														0.25					
St. Paul, Minn.	13	4:33 p. m.	6:45 p. m.	0.96	5:53 p. m.	6:28 p. m.	0.08	0.05	0.10	0.21	0.35	0.54	0.71	0.84									
Salt Lake City, Utah.	9			0.32														0.30					
San Antonio, Tex.	25	12:25 p. m.	1:40 p. m.	0.50	12:57 p. m.	1:18 p. m.	0.02	0.10	0.17	0.32	0.44	0.47											
San Diego, Cal.	17			T.														T.					
Sand Key, Fla.	26	12:10 p. m.	3:00 p. m.	0.64	12:12 p. m.	12:48 p. m.	0.01	0.07	0.10	0.22	0.41	0.49	0.51										
Sandusky, Ohio.	15			0.66														0.42					
San Francisco, Cal.	†																						
San Jose, Cal.	†																						
San Luis Obispo, Cal.	†																						
Santa Fe, N. Mex.	10			0.36														0.36					
Sault Ste. Marie, Mich.	28	3:35 a. m.	7:30 a. m.	1.73	4:47 a. m.	6:03 a. m.	0.12	0.09	0.24	0.27	0.31	0.36	0.44	0.56	0.66	0.80	0.96	1.16	1.35				
Savannah, Ga.	6	11:14 a. m.	12:03 p. m.	0.89	11:20 a. m.	11:39 a. m.	0.01	0.20	0.44	0.77	0.87												
Do.	8	7:25 a. m.	9:00 a. m.	0.84	8:17 a. m.	8:38 a. m.	0.17	0.30	0.45	0.56	0.63	0.66											
Do.	23	D. N.	7:48 a. m.	2.32	5:16 a. m.	6:09 a. m.	0.75	0.08	0.11	0.17	0.35	0.51	0.70	0.74	0.88	1.12	1.25	1.33					
Seranton, Pa.	29			0.22														0.16					
Seattle, Wash.	25			0.20														0.05					
Sheridan, Wyo.	23			0.08														0.08					
Shreveport, La.	7	4:50 p. m.	7:15 p. m.	1.02	5:10 p. m.	5:38 p. m.	0.03	0.20	0.45	0.62	0.77	0.86	0.92										
Do.	24	2:20 p. m.	4:40 p. m.	1.23	2:36 p. m.	3:00 p. m.	0.03	0.13	0.41	0.79	0.90	0.98	1.07	1.13									
Sioux City, Iowa.	2-3	10:05 p. m.	3:30 a. m.	1.30	10:13 p. m.	10:58 p. m.	0.02	0.08	0.20	0.41	0.55	0.65	0.71	0.76	0.81	0.95							
Southeast Farallon, Cal.	†																						
Spokane, Wash.	26			0.01														0.01					
Springfield, Ill.	25	5:10 p. m.	6:50 p. m.	0.80	5:18 p. m.	5:55 p. m.	0.04	0.08	0.21	0.50	0.52	0.53	0.61	0.71	0.75								
Springfield, Mo.	28	4:45 p. m.	8:00 p. m.	1.01	6:16 p. m.	6:49 p. m.	0.06	0.23	0.50	0.68	0.73	0.76	0.85	0.91									
Syracuse, N. Y.	16			1.05														0.58					
Tacoma, Wash.	25			0.14														0.05					
Tampa, Fla.	16	11:05 a. m.	2:25 p. m.	1.73	11:27 a. m.	11:54 a. m.	0.01	0.35	0.65	0.96	1.20	1.32	1.36										
Do.	19-20	9:20 p. m.	1:00 a. m.	1.92	9:50 p. m.	10:57 p. m.	0.10	0.06	0.19	0.27	0.37	0.54	0.67	0.86	1.03	1.16	1.26	1.46	1.69				
Do.	30	11:20 a. m.	4:30 p. m.	2.51	1:31 p. m.	2:36 p. m.	0.32	0.25	0.33	0.36	0.41	0.46	0.47	0.53	0.62	0.72	0.88	1.23	1.50				
Tatoosh Island, Wash.	25			1.64														0.33					
Taylor, Tex.	20	3:03 p. m.	7:30 p. m.	1.95	3:06 p. m.	3:44 p. m.	0.02	0.21	0.62	1.08	1.34	1.55	1.69	1.77	1.81								
Thomasville, Ga.	9	1:38 p. m.	9:32 p. m.	1.65	2:07 p. m.	3:01 p. m.	0.01	0.07	0.14	0.23	0.25	0.27	0.39	0.75	0.85	1.05	1.14	1.25					
Do.	13	1:10 p. m.	2:22 p. m.	1.75	1:14 p. m.	1:37 p. m.	0.01	0.24	0.74	1.21	1.58	1.62											
Do.	20	1:10 p. m.	3:45 p. m.	1.29	2:07 p. m.	2:29 p. m.	0.09	0.44	0.76	0.86	1.02	1.08											
Toledo, Ohio.	14-15	11:10 p. m.	12:45 a. m.	0.98	12:14 a. m.	12:27 a. m.	0.17	0.29	0.65	0.75													
Tonopah, Nev.	28			0.36														0.30					
Topeka, Kans.	3			0.57														0.35					
Valentine, Nebr.	12	3:14 p. m.	4:40 p. m.	3.21	3:14 p. m.	4:22 p. m.	0.00	0.17	0.34	0.47	0.65	0.79	1.19	1.58	2.02	2.39	2.64	3.01	3.21				
Do.	22-23	10:02 p. m.	1:01 a. m.	0.81	11:49 p. m.	12:14 a. m.	0.14	0.14	0.35	0.46	0.54	0.61											
Vicksburg, Miss.	2	12:40 p. m.	1:40 p. m.	1.13	12:44 p. m.	1:16 p. m.	0.02	0.17	0.42	0.59	0.82	0.93	1.01	1.07									
Do.	7	12:25 p. m.	4:20 p. m.	0.96	1:24 p. m.	1:39 p. m.	0.01	0.35	0.49	0.56													
Walla Walla, Wash.	23			0.01														0.01					
Washington, D. C.	16-17	9:10 p. m.	12:25 a. m.	0.66	9:22 p. m.	9:30 p. m.	0.01	0.24	0.39														
Wichita, Kans.	28			0.43														0.30					
Williston, N. Dak.	23			0.12														0.09					
Wilmington, N. C.	16	1:35 p. m.	7:25 p. m.	2.25	3:20 p. m.	3:47 p. m.	0.35	0.50	0.86	1.06	1.26	1.47	1.55										
Winnemucca, Nev.	30			0.01														0.01					
Wytheville, Va.	16	9:20 p. m.	10:35 p. m.	0.93	9:36 p. m.	9:56 p. m.	0.10	0.49	0.66	0.75													
Yankton, S. Dak.	12	12:50 a. m.	3:10 a. m.	1.14	2:13 a. m.	2:48 a. m.	0.33	0.12	0.27	0.32	0.47	0.56	0.71	0.81									
Yellowstone Park, Wyo.	2			0.28														0.15					

\* Self register not working.

† Estimated.

‡ No precipitation recorded during month.

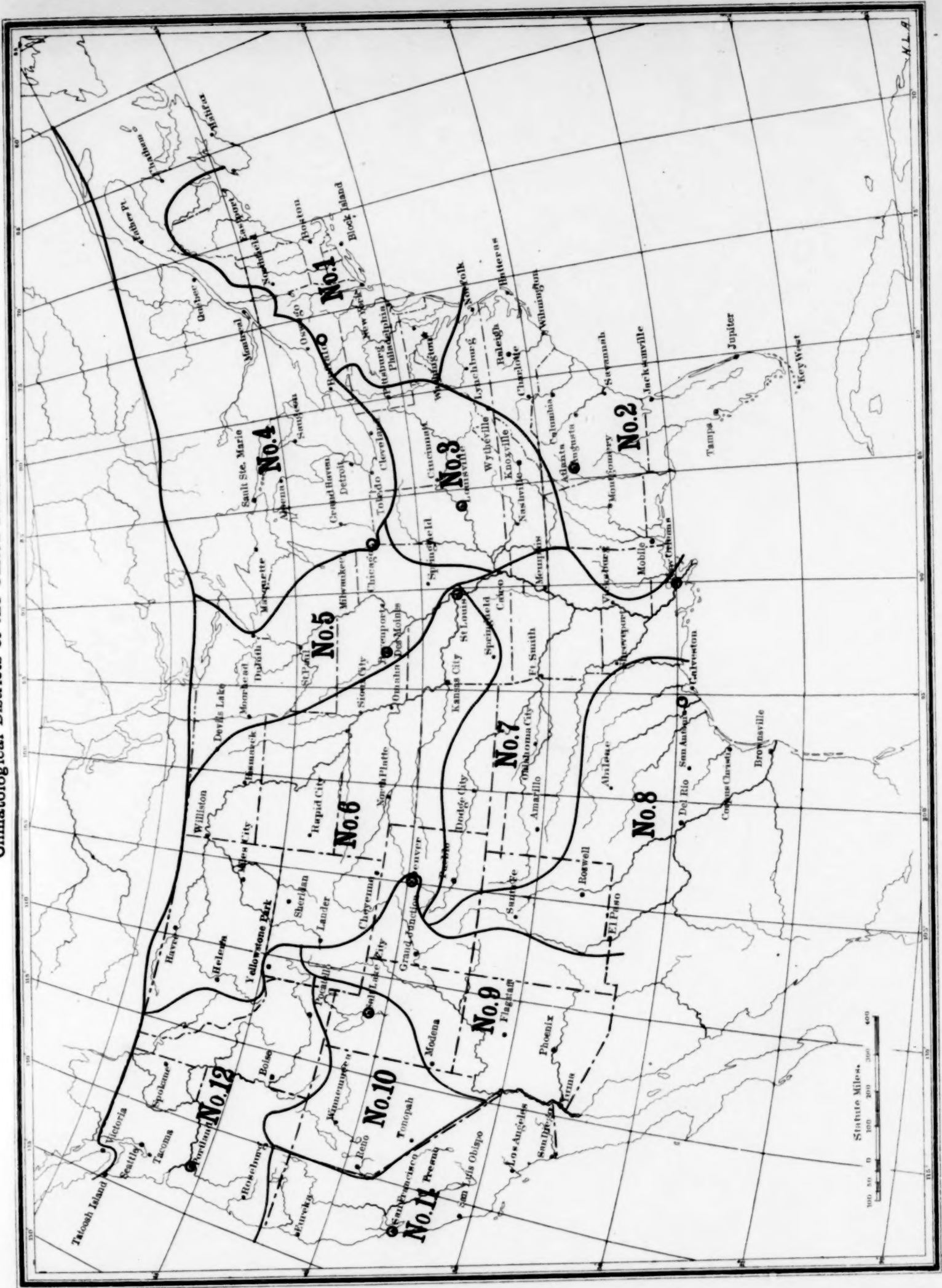
TABLE III.—Data furnished by the Canadian Meteorological Service, August, 1909.

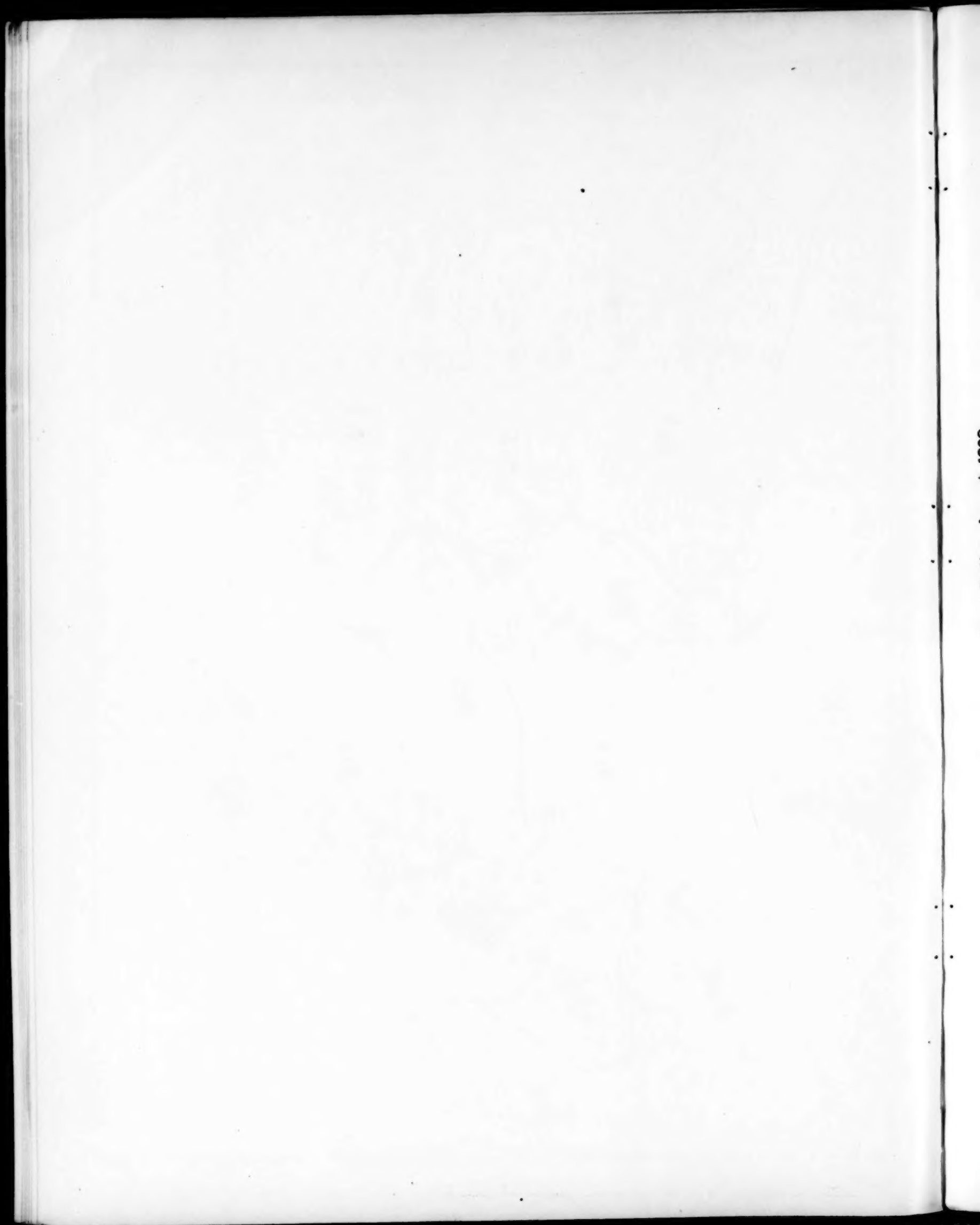
Stations.	Pressure.			Temperature.				Precipitation.			Stations.	Pressure.			Temperature.				Precipitation.		
	Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean.	Departure from normal.	Mean maximum.	Mean minimum.	Total.	Departure from normal.	Total snowfall.		Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean.	Departure from normal.	Mean maximum.	Mean minimum.	Total.	Departure from normal.	Total snowfall.
St. John's, N. F.	Ins.	Ins.	Ins.	°	°	°	°	Ins.	Ins.	Ins.	Parry Sound, Ont.	Ins.	Ins.	Ins.	°	°	°	°	Ins.	Ins.	Ins.
Sydney, C. B. I.	29.93	29.97	+0.02	63.6	+0.3	73.4	53.8	4.00	+0.38	.....	Port Arthur, Ont.	29.34	30.02	+0.04	68.0	+4.5	79.1	56.9	1.15	-1.21	.....
Halifax, N. S.	29.87	29.97	+0.01	64.7	+1.1	74.7	54.8	3.38	-0.97	.....	Winnipeg, Man.	29.13	29.94	+0.05	63.4	+3.9	71.9	55.0	3.05	+0.30	.....
Grand Manan, N. B.	29.92	29.97	+0.02	62.3	+0.8	70.8	53.7	2.15	-1.51	.....	Minneapolis, Minn.	28.16	29.94	+0.00	65.4	+6.0	79.7	51.1	1.23	-0.87	.....
Yarmouth, N. S.	29.92	29.99	+0.02	60.4	+0.2	69.4	51.4	1.26	-2.75	.....	Qu'Appelle, Assn.	27.68	29.89	-0.04	62.4	+0.9	74.2	50.7	3.96	+2.32	.....
Charlottetown, P. E. I.	29.91	29.95	+0.01	66.2	+1.9	74.3	58.1	5.54	+1.76	.....	Medicine Hat, Alberta.	27.65	29.88	-0.04	69.2	+3.5	85.5	53.0	0.20	-1.47	.....
Chatham, N. B.	29.92	29.94	+0.01	64.5	+1.3	74.6	54.4	4.77	+0.73	.....	Swift Current, Sask.	27.40	29.92	-0.01	64.8	+0.8	78.4	51.2	2.26	+0.35	.....
Father Point, Que.	29.92	29.94	+0.03	56.2	+0.6	64.1	48.3	3.27	+0.22	.....	Calgary, Alberta.	26.40	29.87	-0.04	59.0	+0.4	74.4	43.5	0.59	-0.55	.....
Quebec, Que.	29.66	29.98	+0.05	64.1	+1.0	73.6	54.7	5.13	+1.30	.....	Banff, Alberta.	25.40	29.93	-0.02	54.5	-1.8	70.8	38.2	0.99	-1.54	.....
Montreal, Que.	29.79	29.99	+0.04	67.2	+0.8	75.8	58.7	2.24	-1.33	.....	Edmonton, Alberta.	27.62	29.87	-0.05	59.2	+0.4	75.1	43.4	0.89	-1.24	.....
Rockliffe, Ont.	29.39	29.99	+0.03	62.9	-0.3	74.1	51.7	2.90	-0.05	.....	Prince Albert, Sask.	28.35	29.88	-0.04	62.2	+3.3	75.0	49.5	1.18	-0.97	.....
Ottawa, Ont.	29.74	30.06	+0.10	65.7	+0.9	75.7	55.7	3.06	+0.03	.....	Battleford, Sask.	28.16	29.88	-0.03	63.9	+1.3	78.6	49.2	0.33	-2.03	.....
Kingston, Ont.	29.72	30.02	+0.04	67.2	+0.2	75.1	59.3	2.98	+0.60	.....	Kamloops, B. C.	28.62	29.82	-0.09	66.7	-1.9	80.4	53.0	0.62	-0.47	.....
Toronto, Ont.	28.64	30.00	+0.01	69.1	+3.1	79.1	59.1	1.33	-1.43	.....	Victoria, B. C.	29.94	30.03	+0.02	59.4	+0.7	68.9	50.0	0.47	-0.13	.....
White River, Ont.	28.69	29.98	+0.02	60.8	+4.4	73.4	48.3	1.71	-1.59	.....	Barkerville, B. C.	25.67	29.96	+0.06	47.4	-8.9	55.0	39.9	3.68	+0.58	.....
Port Stanley, Ont.	29.40	30.03	-0.04	67.0	+1.1	76.2	57.7	4.26	+1.84	.....	Hamilton, Bermuda.	29.94	30.10	+0.00	78.5	-1.1	83.9	73.0	5.82	-0.26	.....
Southampton, Ont.	29.36	.....	.....	67.2	+3.4	76.3	58.1	0.82	-1.43	.....	Dawson, Yukon.	28.61	.....	.....	53.5	.....	65.9	41.0	0.81	.....	.....

\* Report incomplete.



# Climatological Districts of the United States.



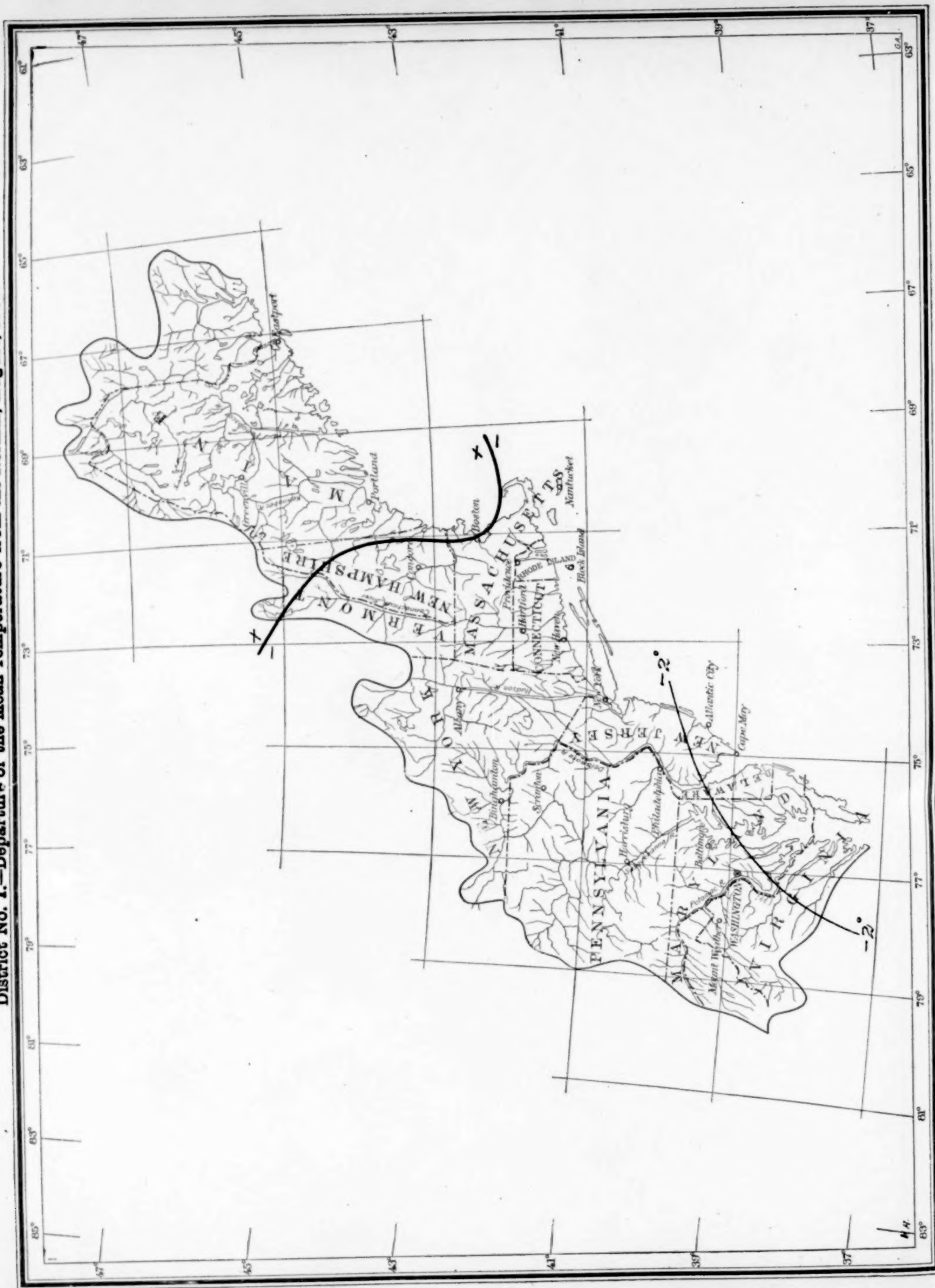




District No. 1.—Total Precipitation, August, 1909.

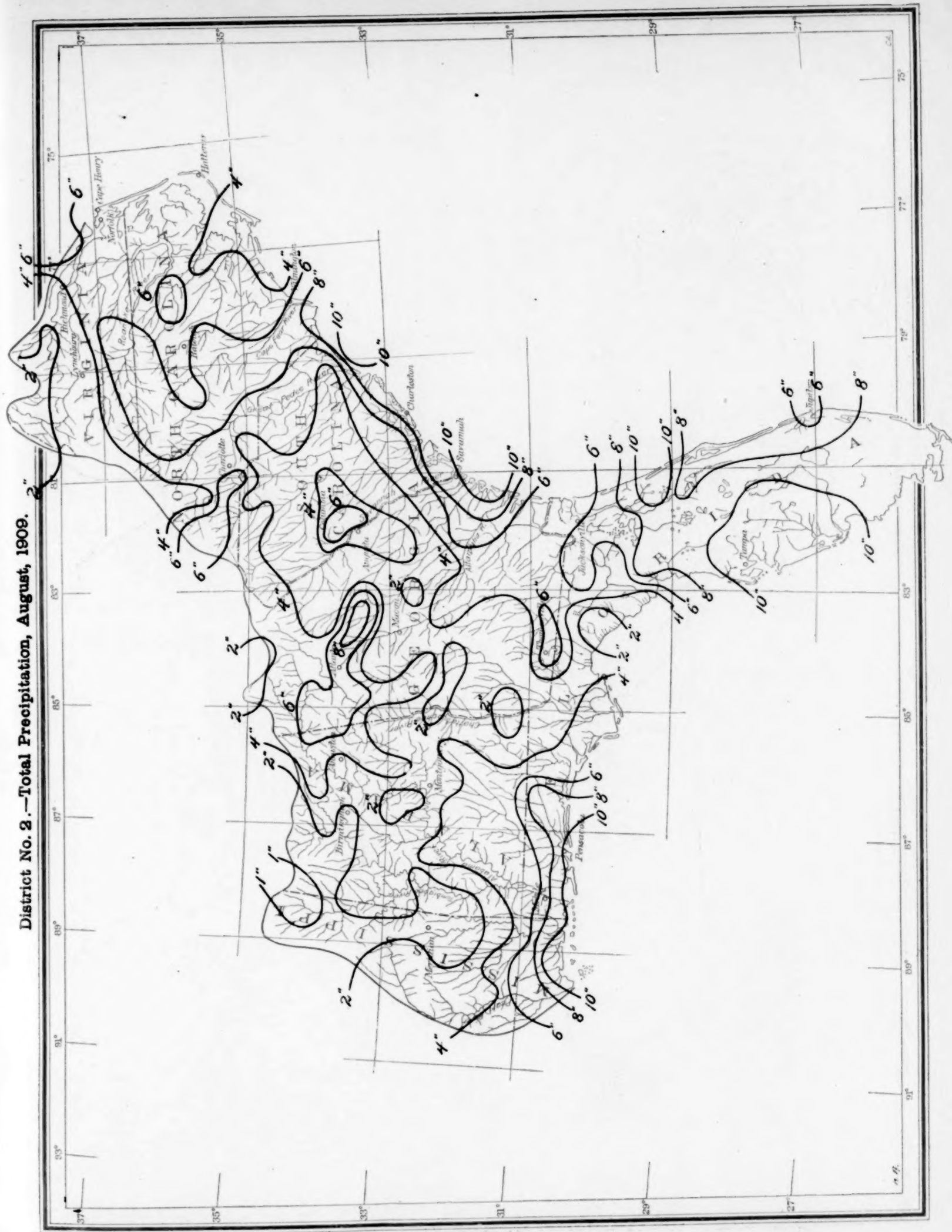


District No. 1.—Departure of the Mean Temperature from the Normal, August, 1909.





District No. 2.—Total Precipitation, August, 1909. 2"



District No. 2.—Departure of the Mean Temperature from the Normal, August, 1909.



District No. 3.—Total Precipitation, August, 1909.



District No. 3.—Total Precipitation, August, 1909.

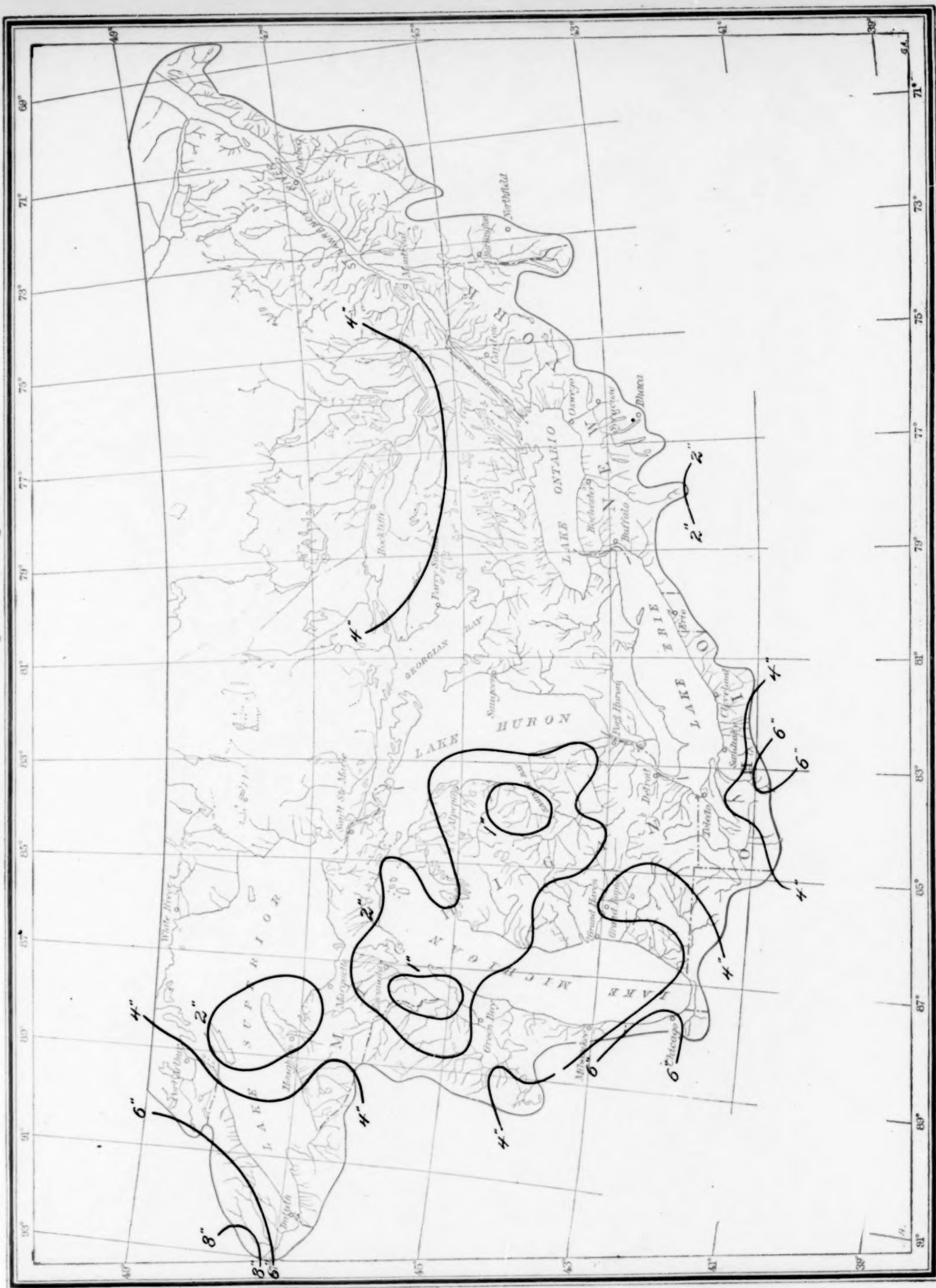


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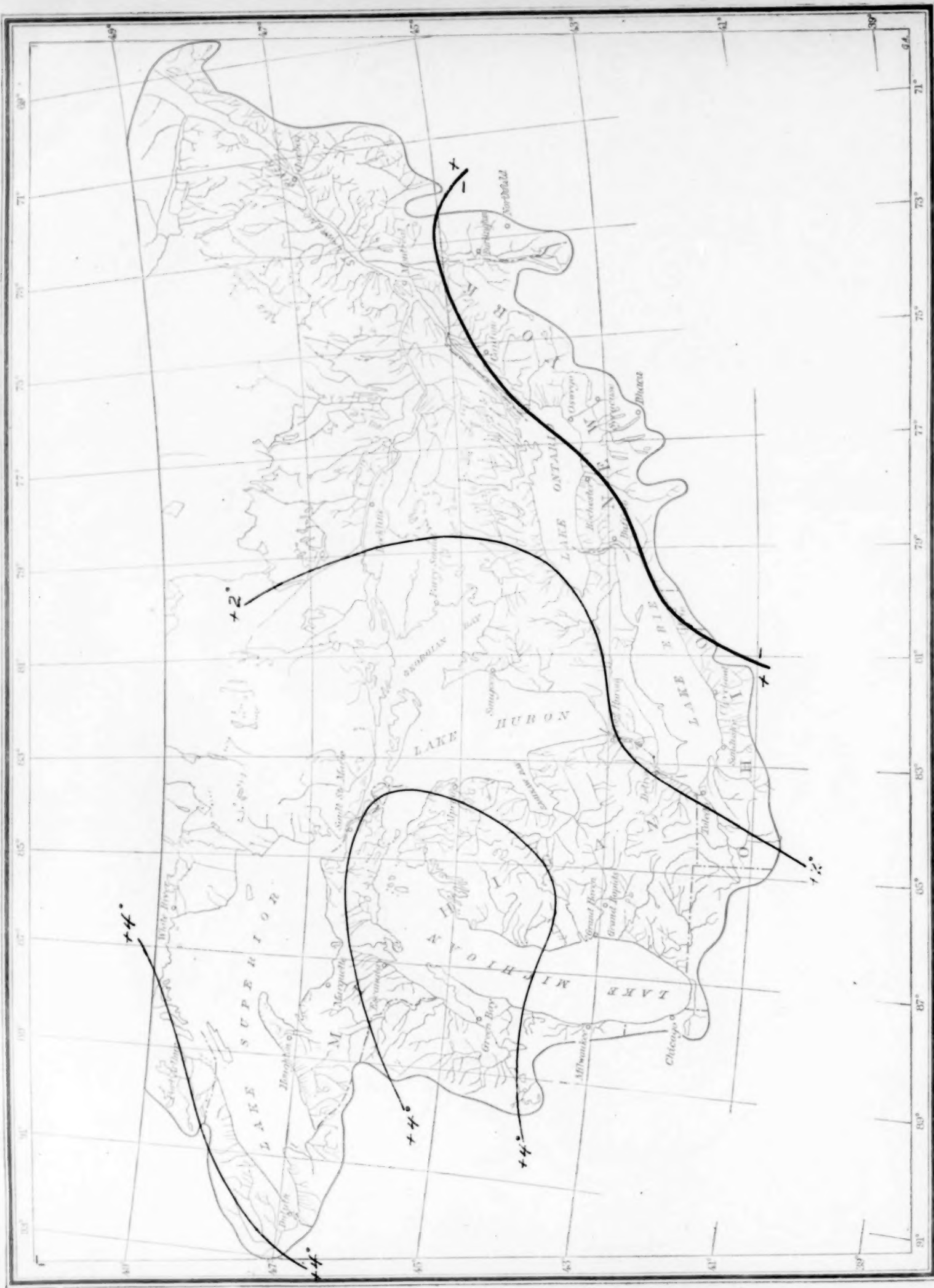




District No. 4.—Total Precipitation, August, 1909.



District No. 4.—Departure of the Mean Temperature from the Normal, August, 1909.

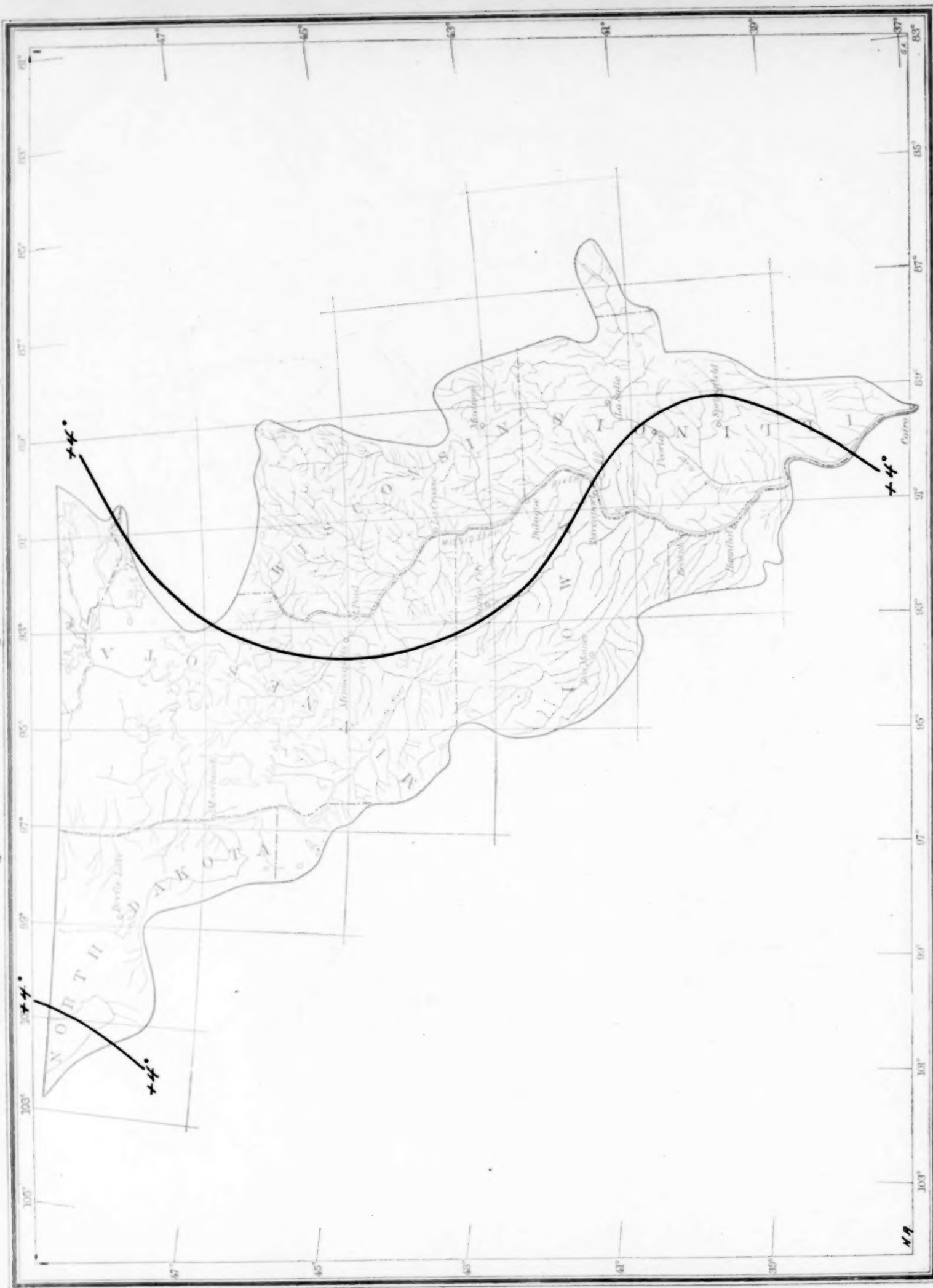




District No. 5.—Total Precipitation, August, 1909.

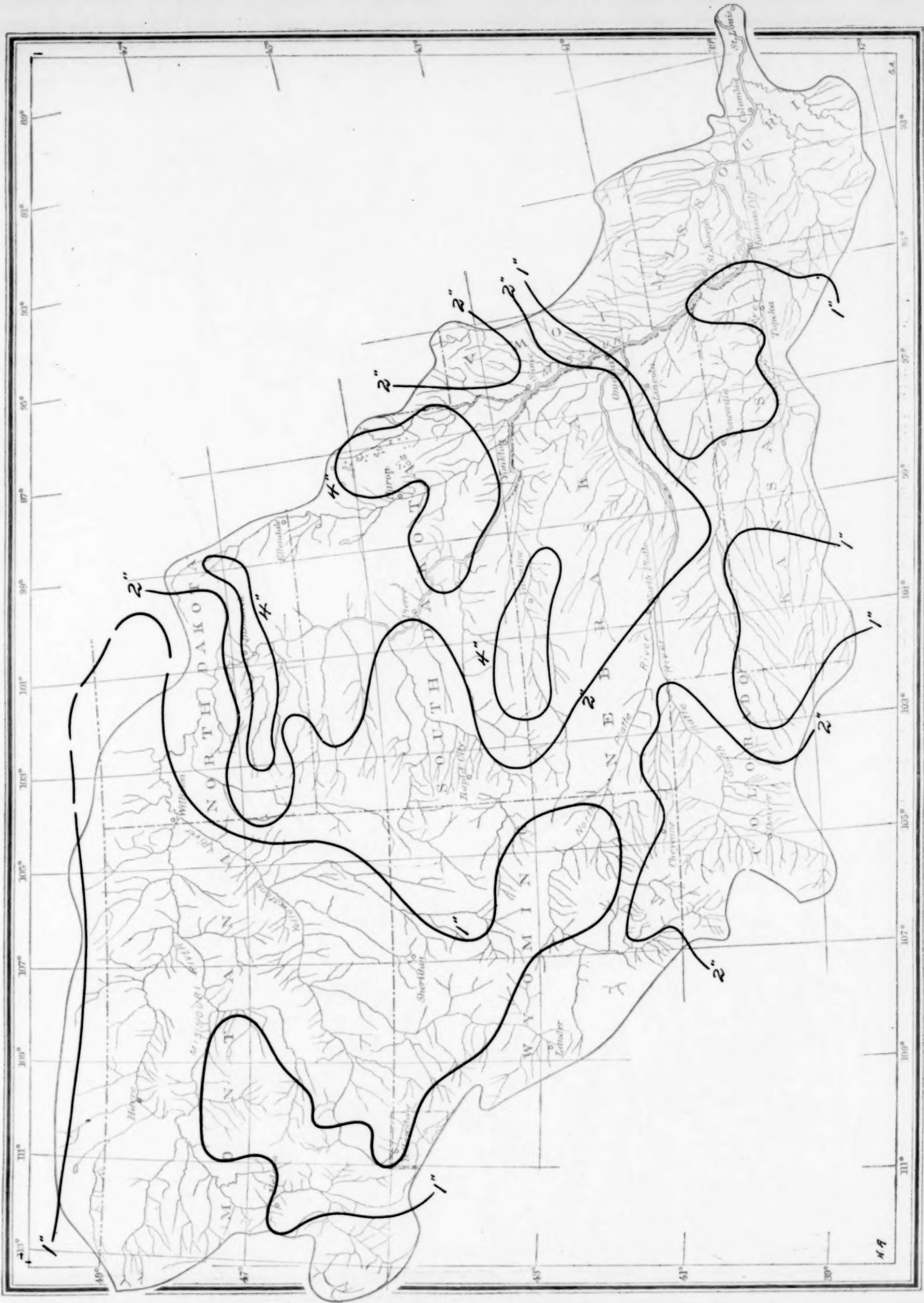


District No. 5.—Departure of the Mean Temperature from the Normal, August, 1909.

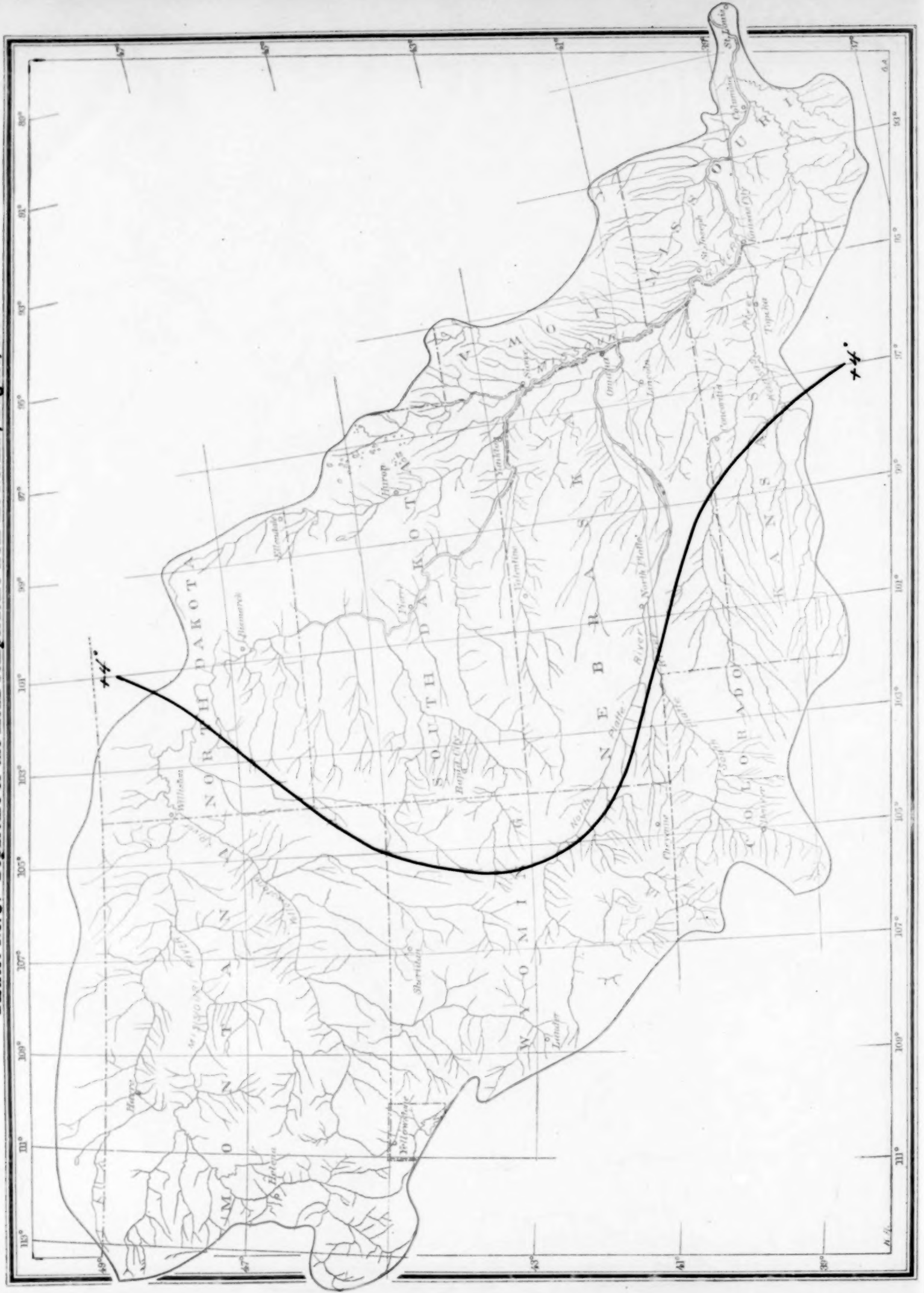




District No. 6.—Total Precipitation, August, 1909.



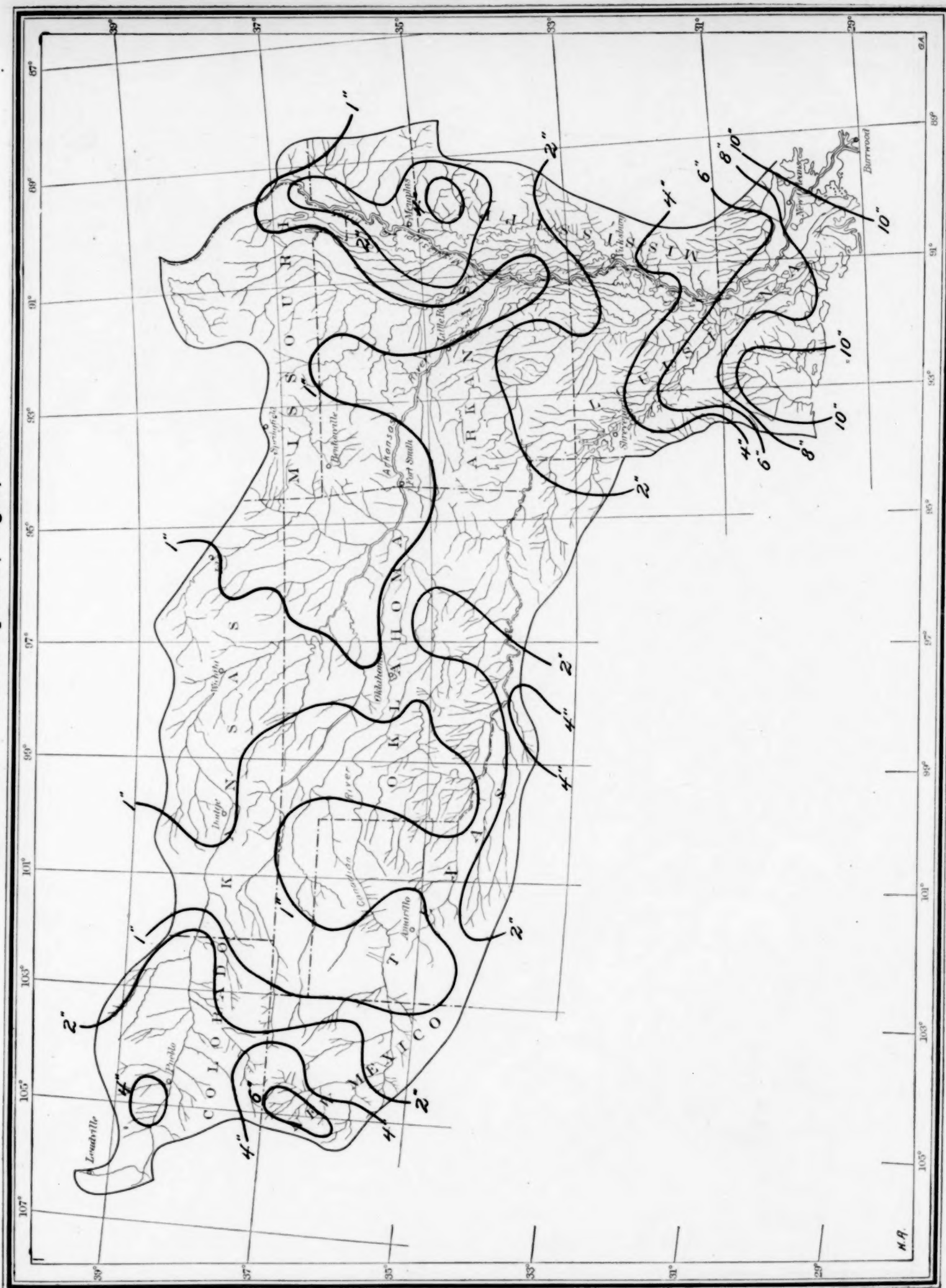
District No. 6.—Departure of the Mean Temperature from the Normal, August, 1909.



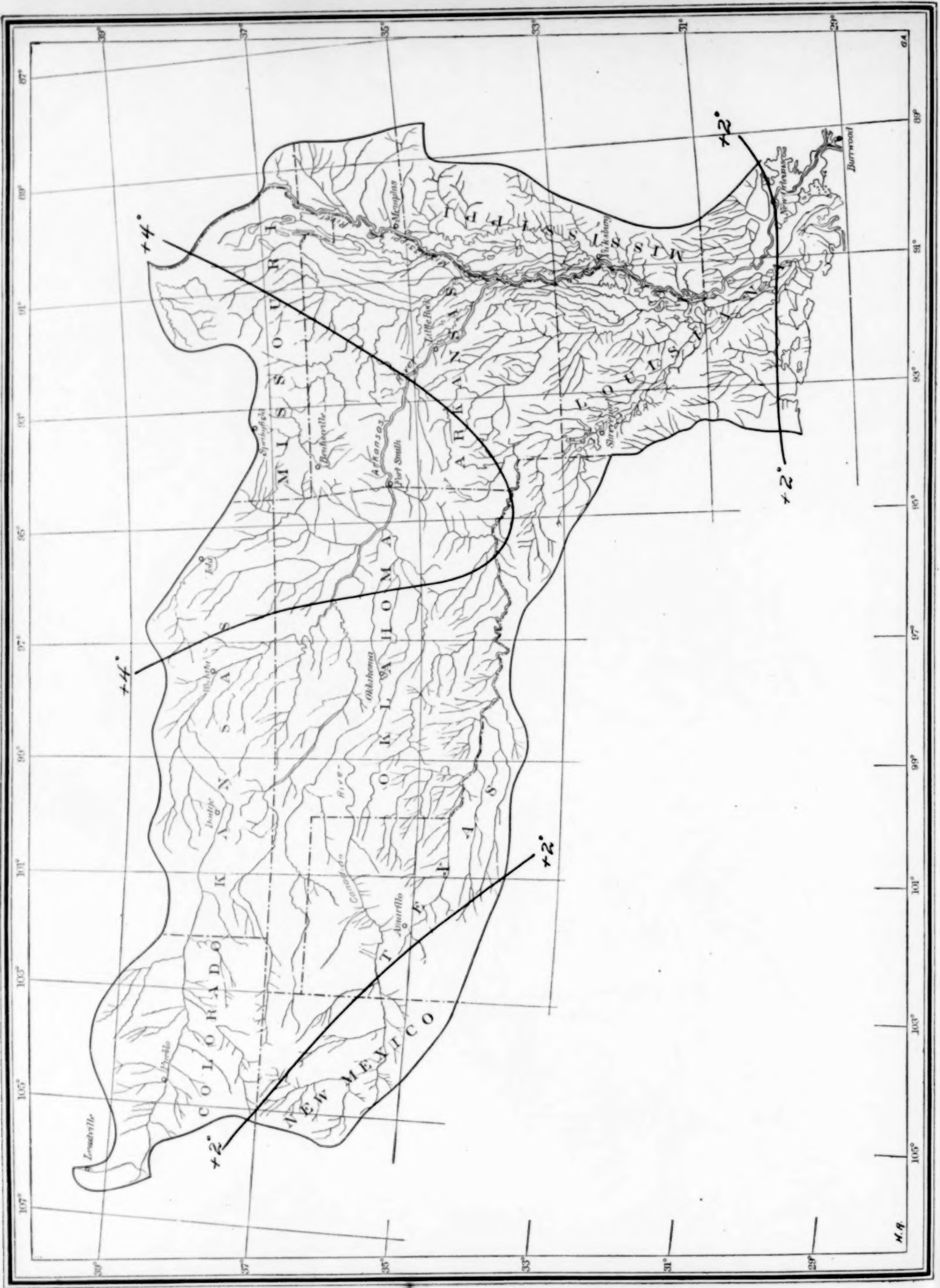
District No. 7.—Total Precipitation, August, 1909.



District No. 7.—Total Precipitation, August, 1909.

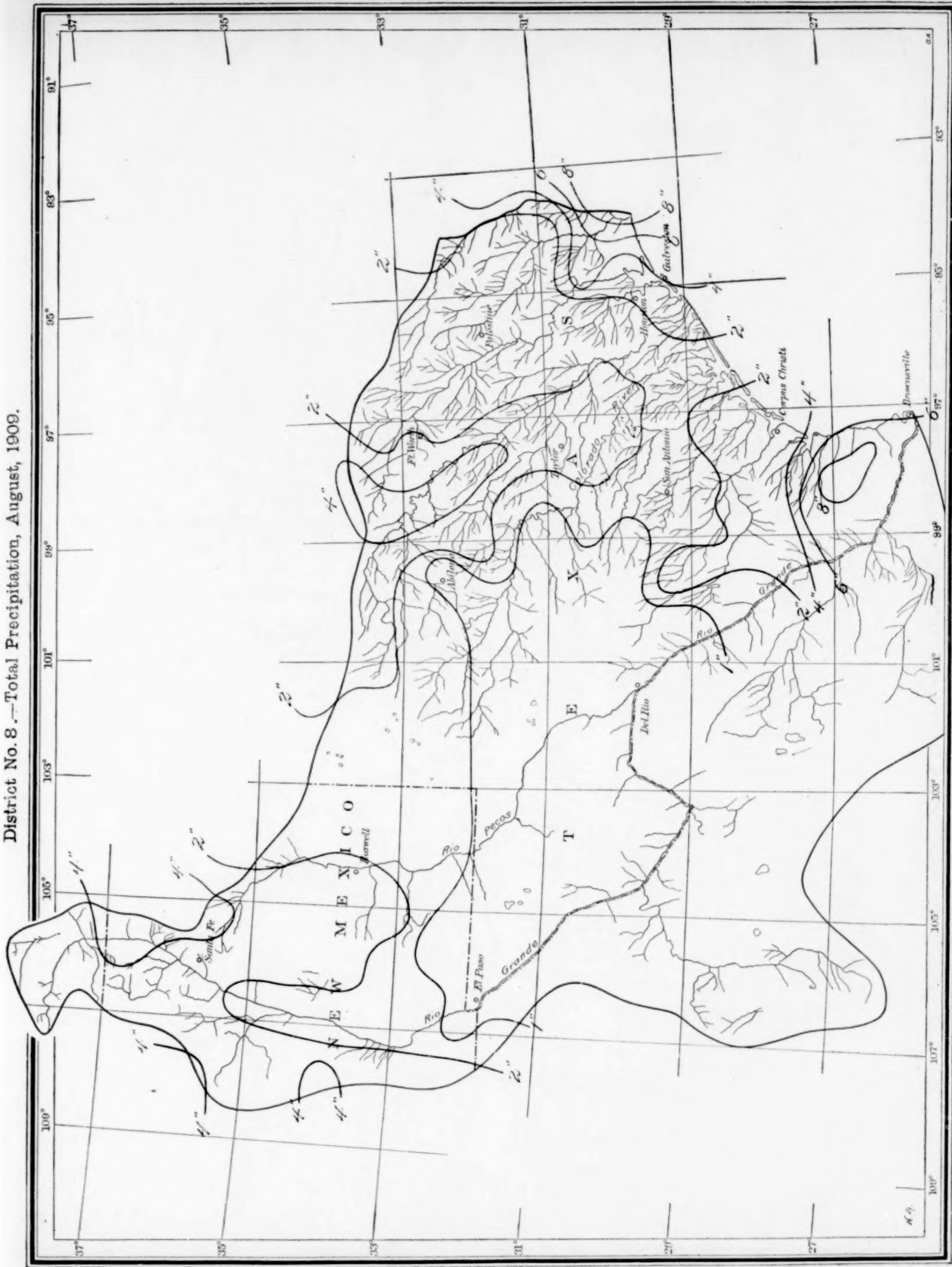


District No. 7.—Departure of the Mean Temperature from the Normal, August, 1908.

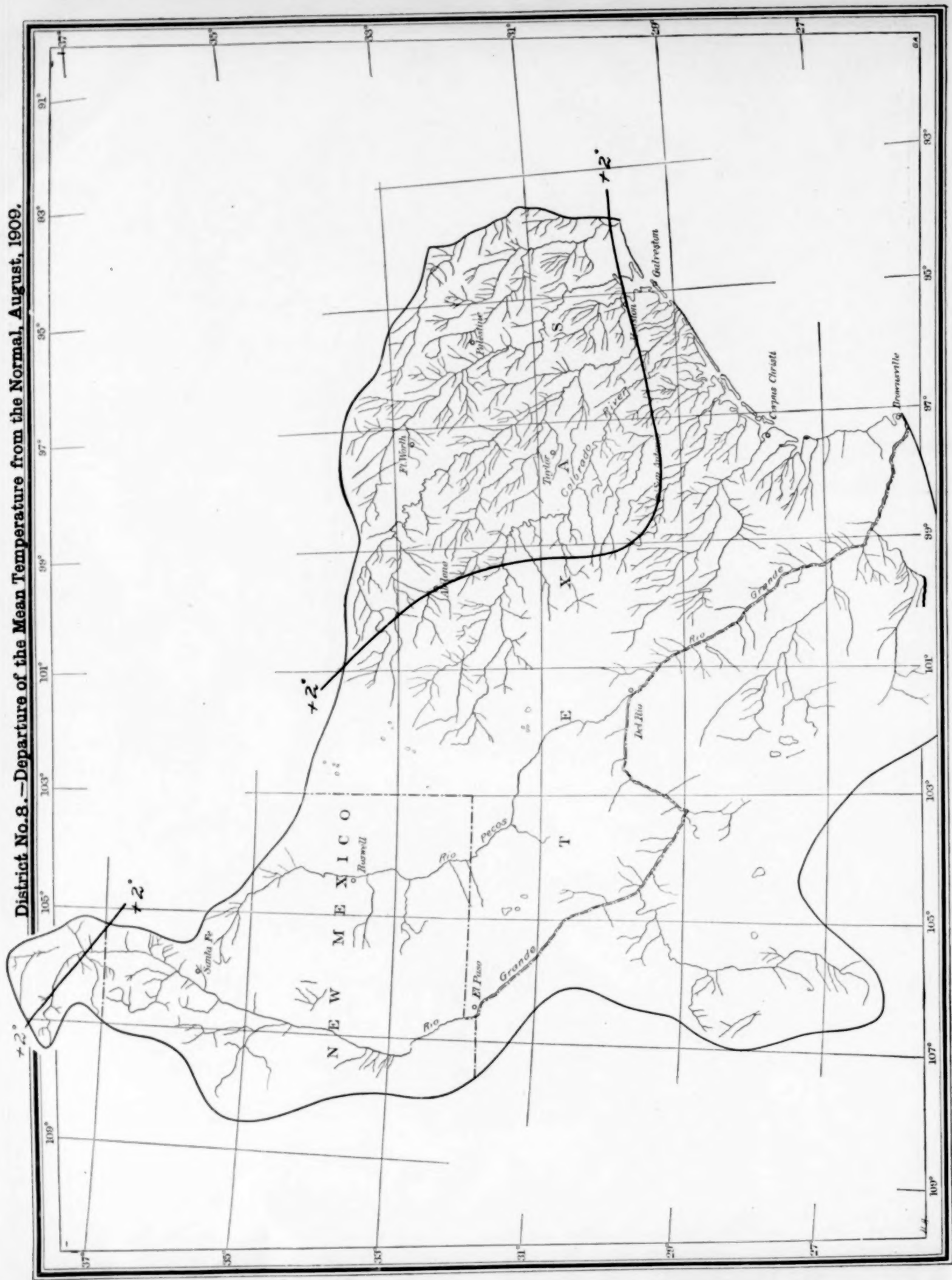




District No. 8.—Total Precipitation, August, 1909.

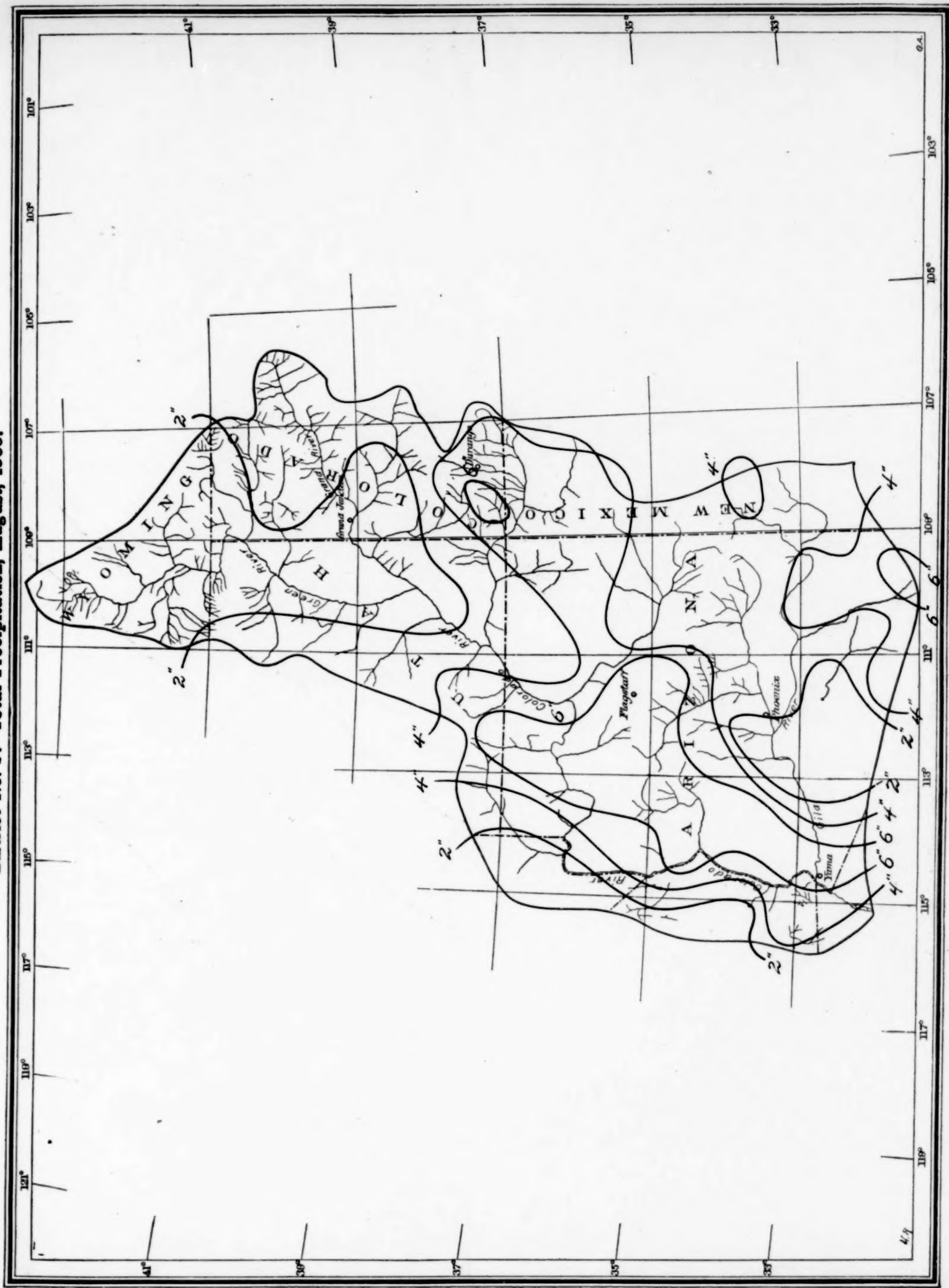


District No. 8.—Departure of the Mean Temperature from the Normal, August, 1909.

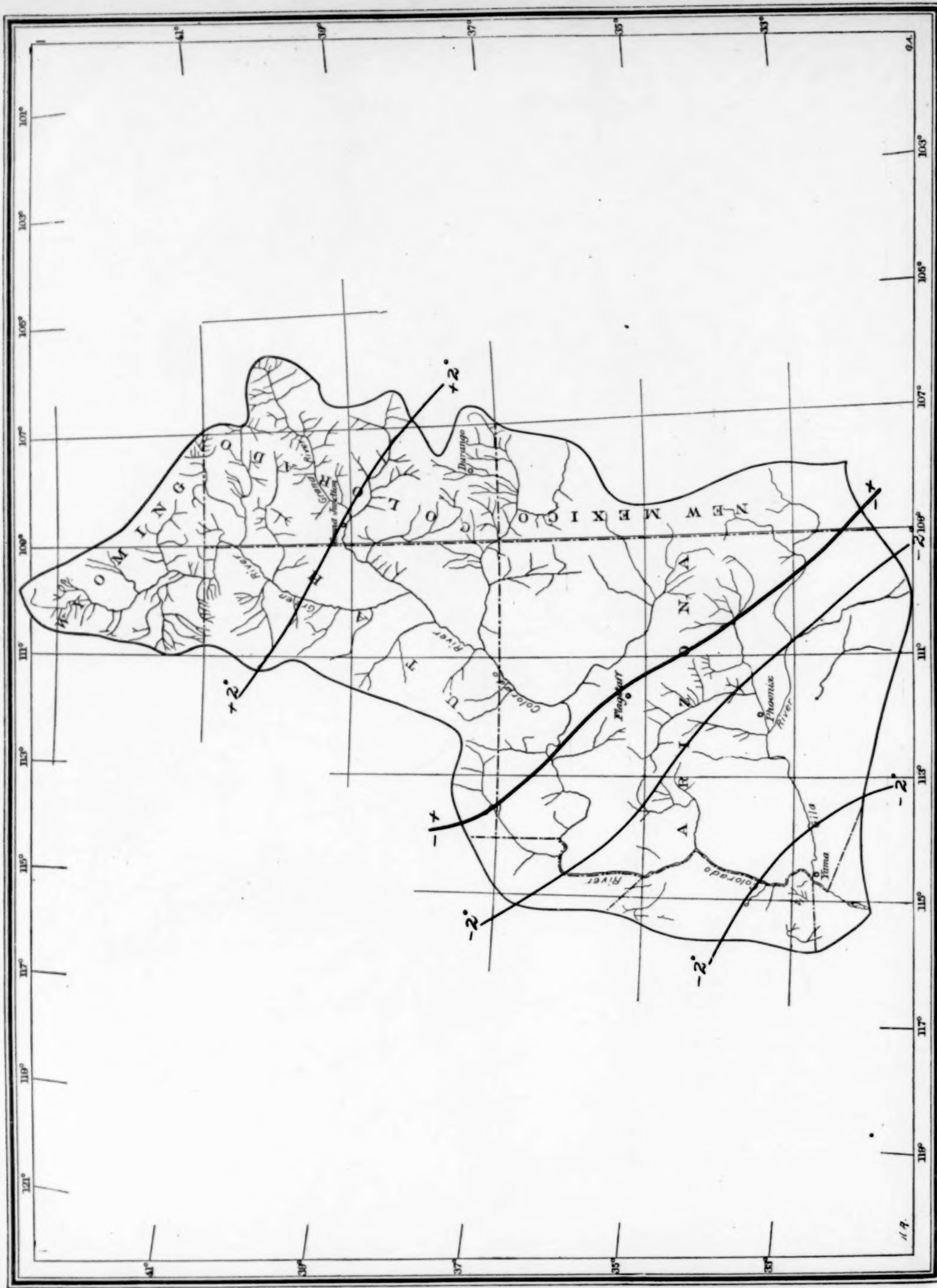




District No. 9.—Total Precipitation, August, 1909.

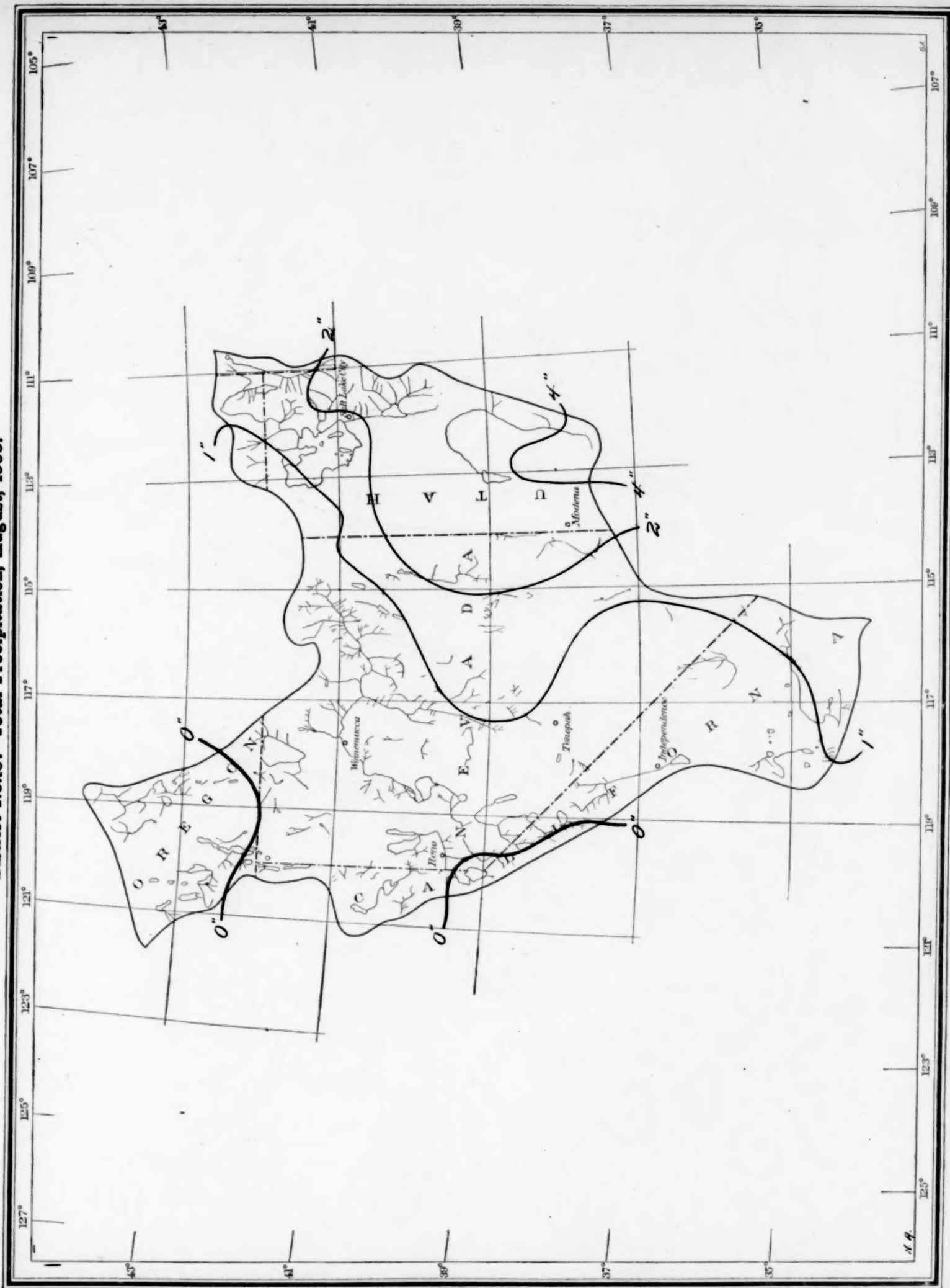


District No. 9.—Departure of the Mean Temperature from the Normal, August, 1909.





**District No.10.—Total Precipitation, August, 1909.**



District No. 10.—Departure of the Mean Temperature from the Normal, August, 1909.

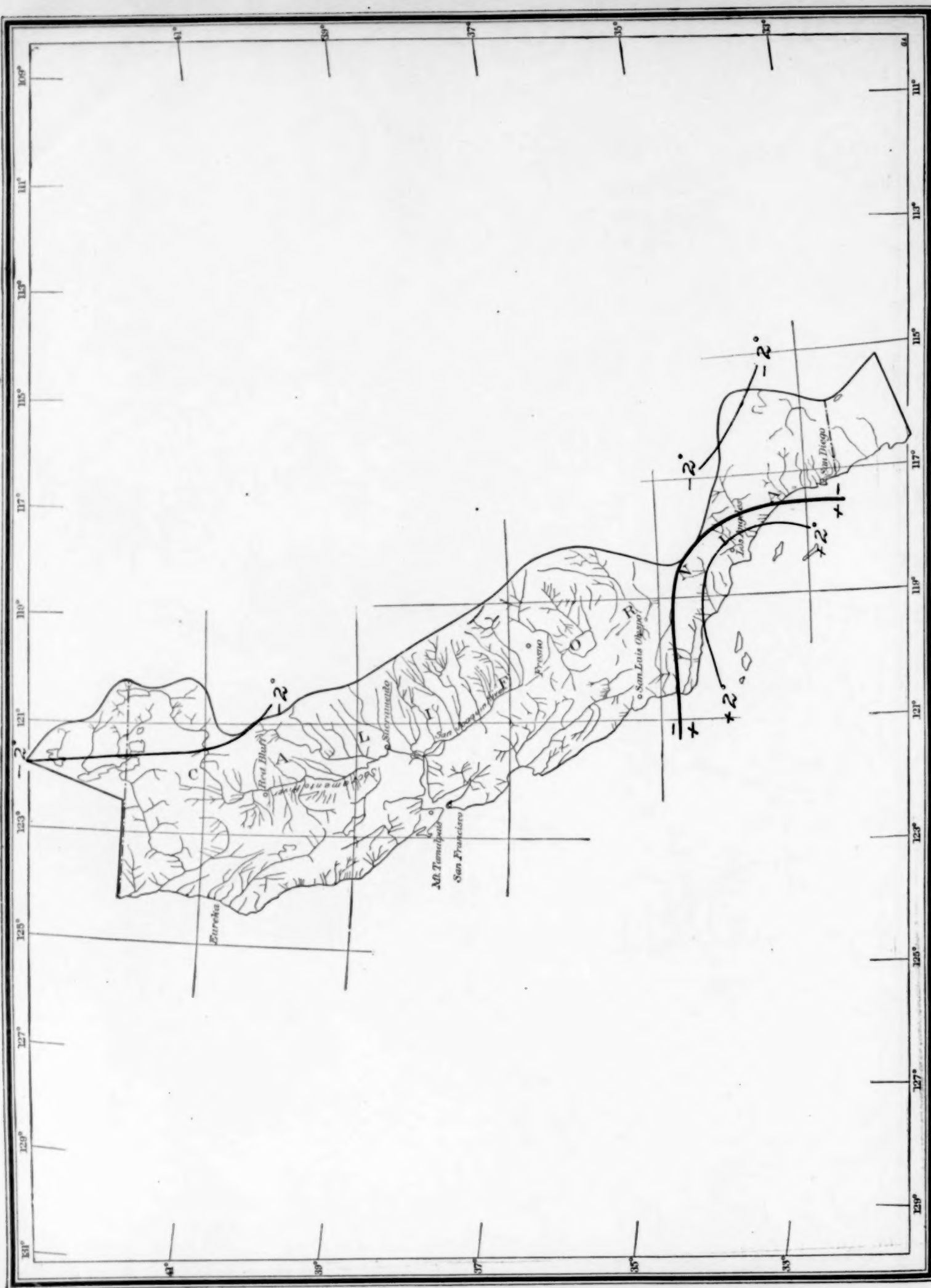




District No. 11.—Total Precipitation, August, 1909.



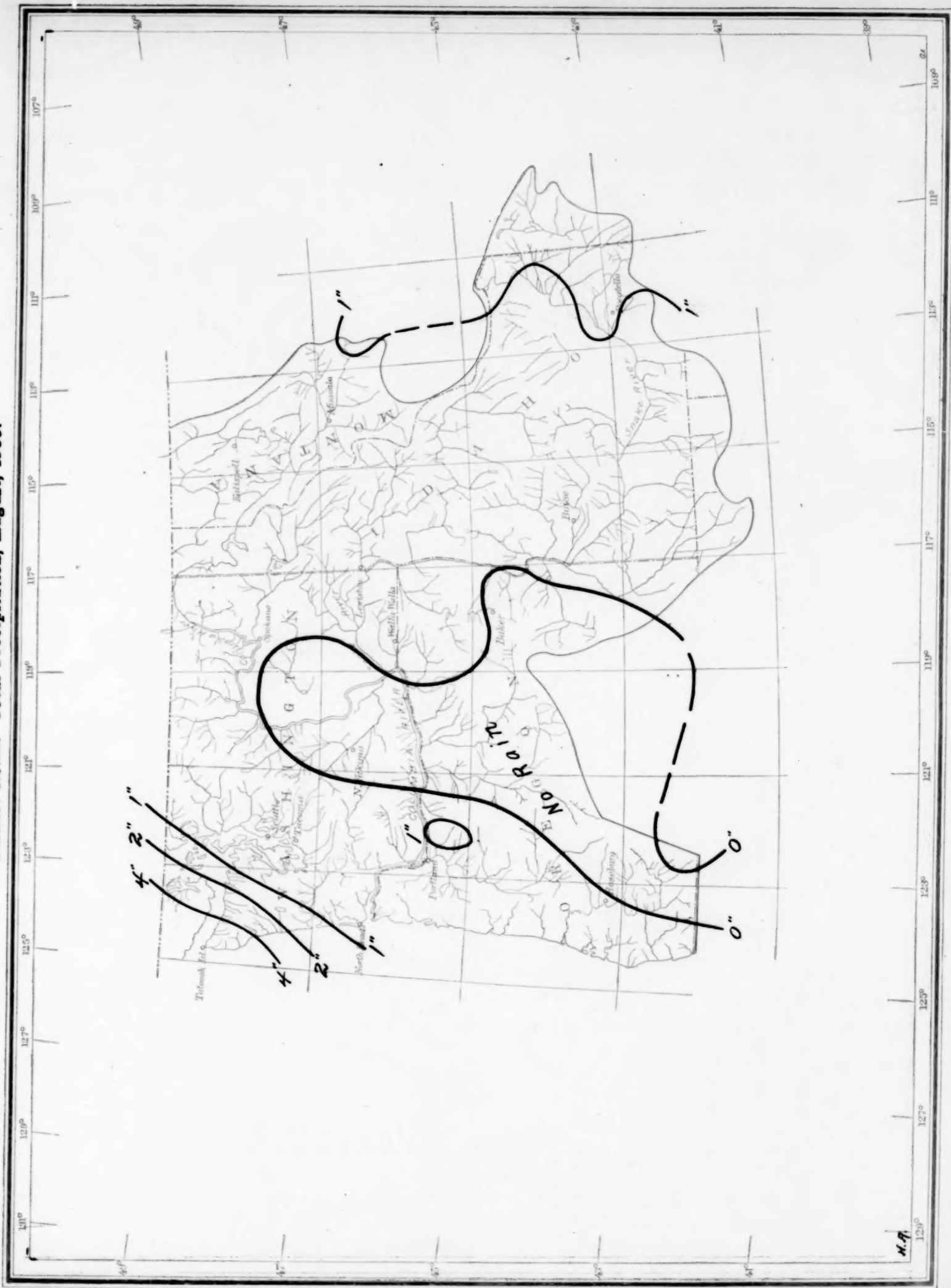
District No. 11.—Departure of the Mean Temperature from the Normal, August, 1909



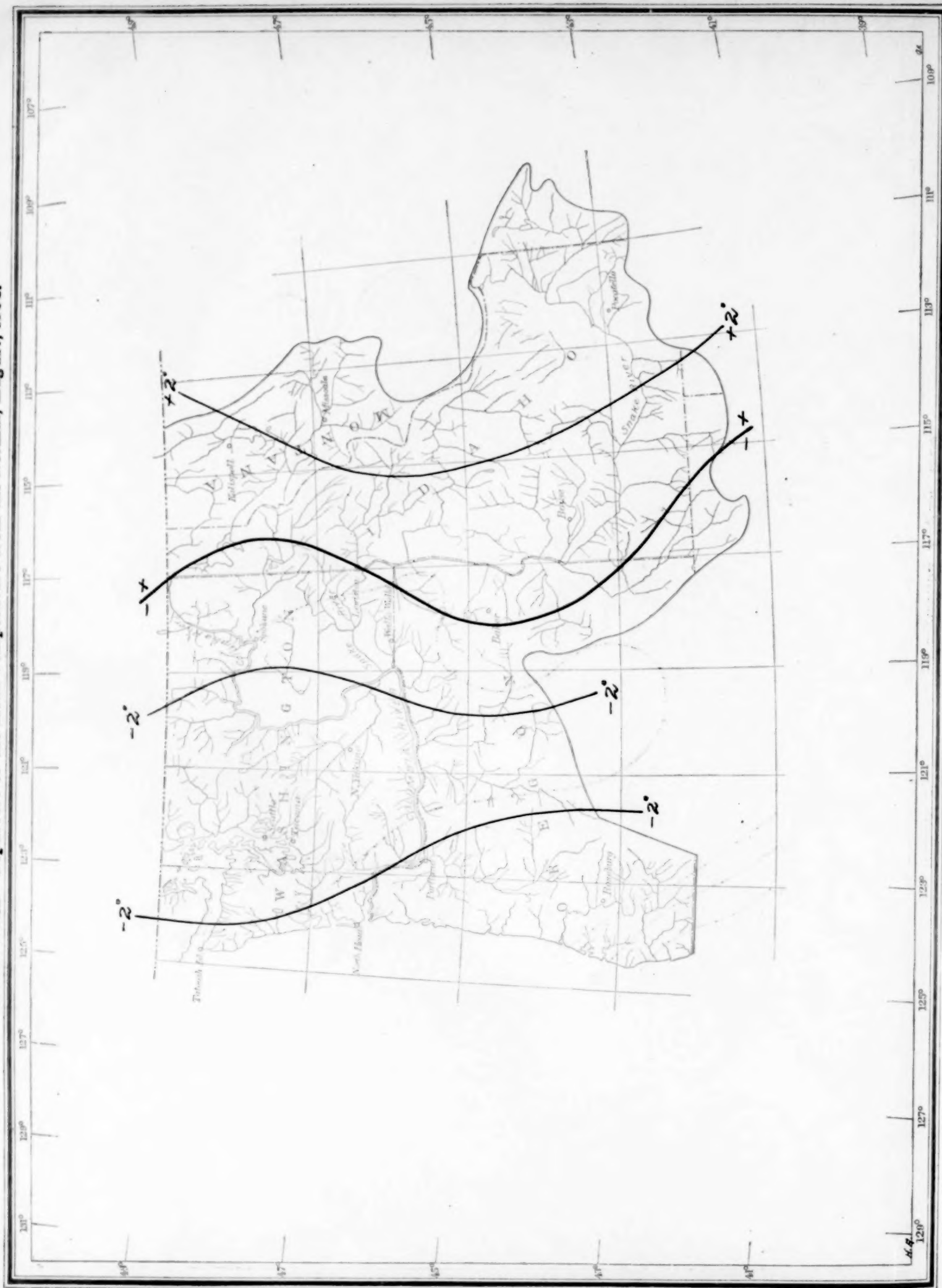
District No. 12.—Total Precipitation, August, 1909.



District No. 12.—Total Precipitation, August, 1908.



District No.12.—Departure of the Mean Temperature from the Normal, August, 1909.





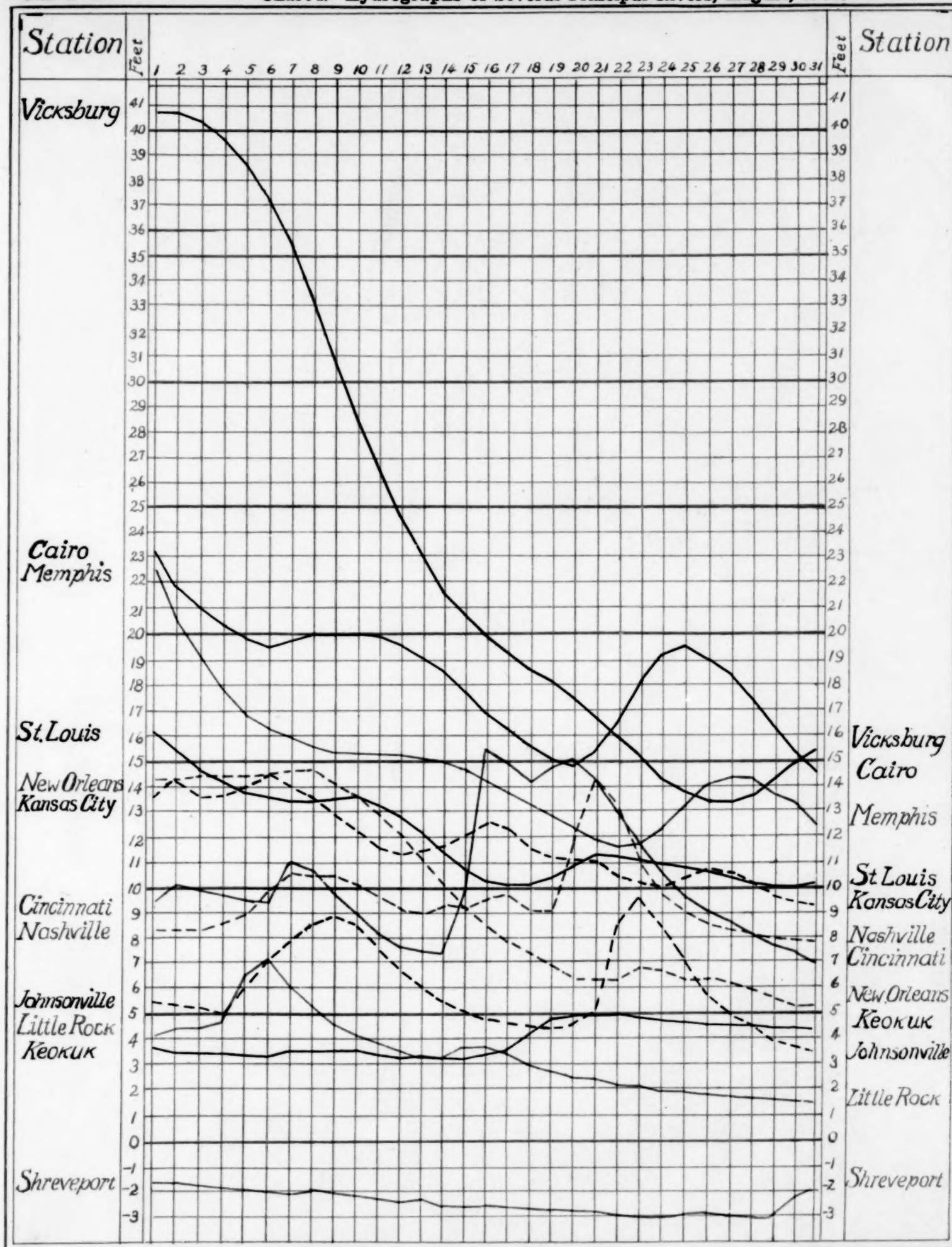


Chart II. Tracks of Centers of High Areas, August, 1909.

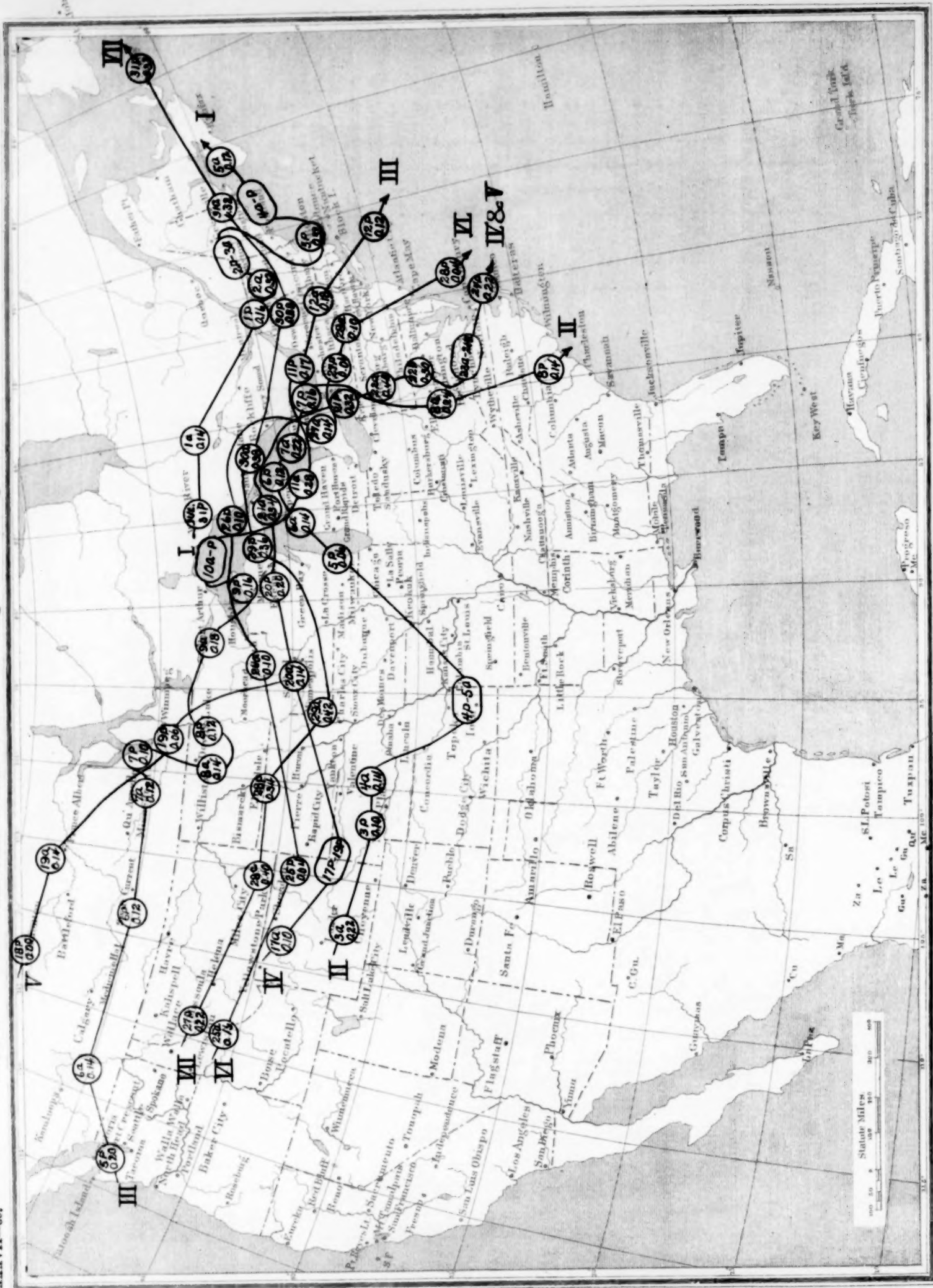


Chart III. Tracks of Centers of Low Areas, August, 1909.



Chart III. Tracks of Centers of Low Areas, August, 1909.

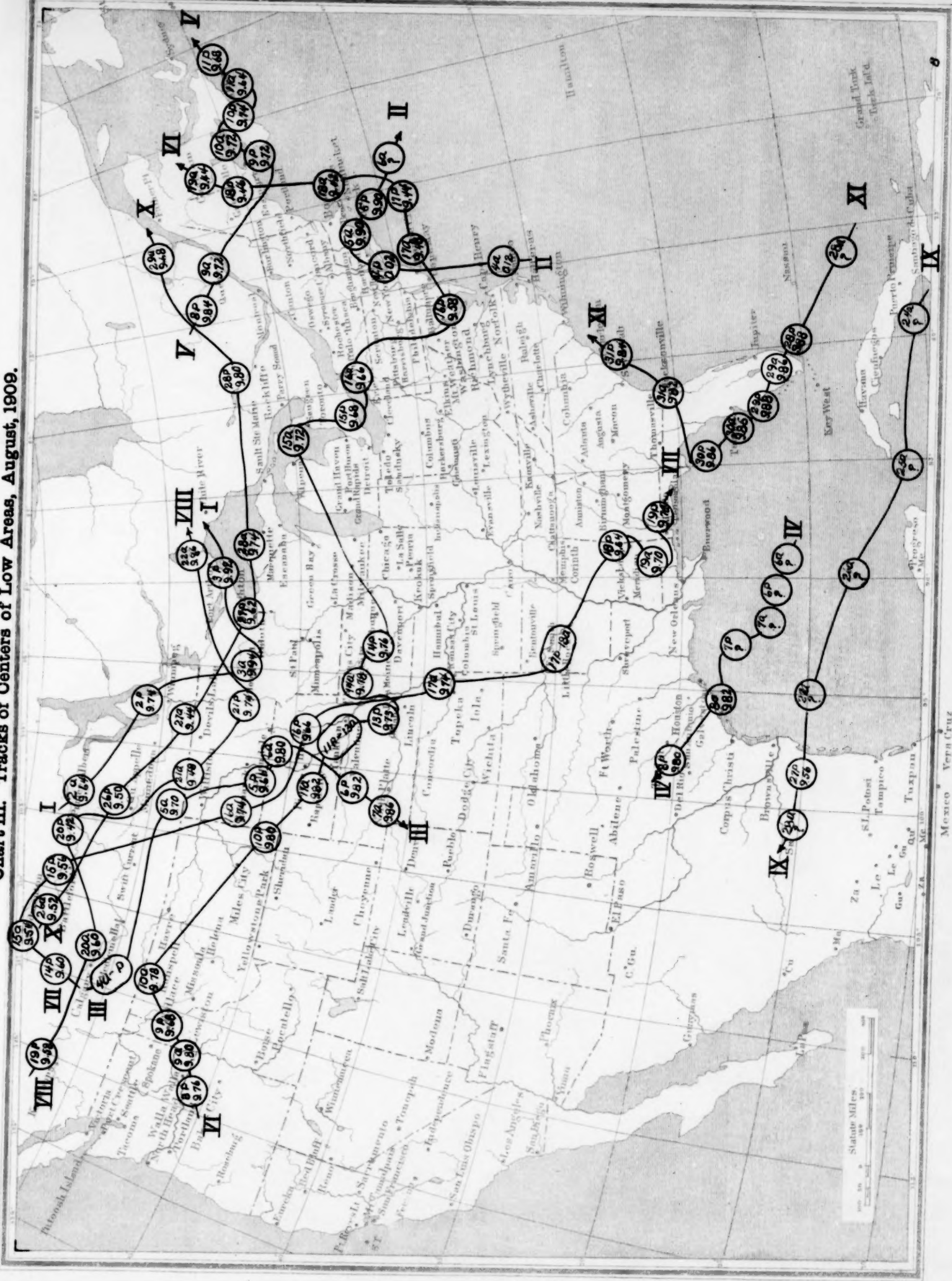


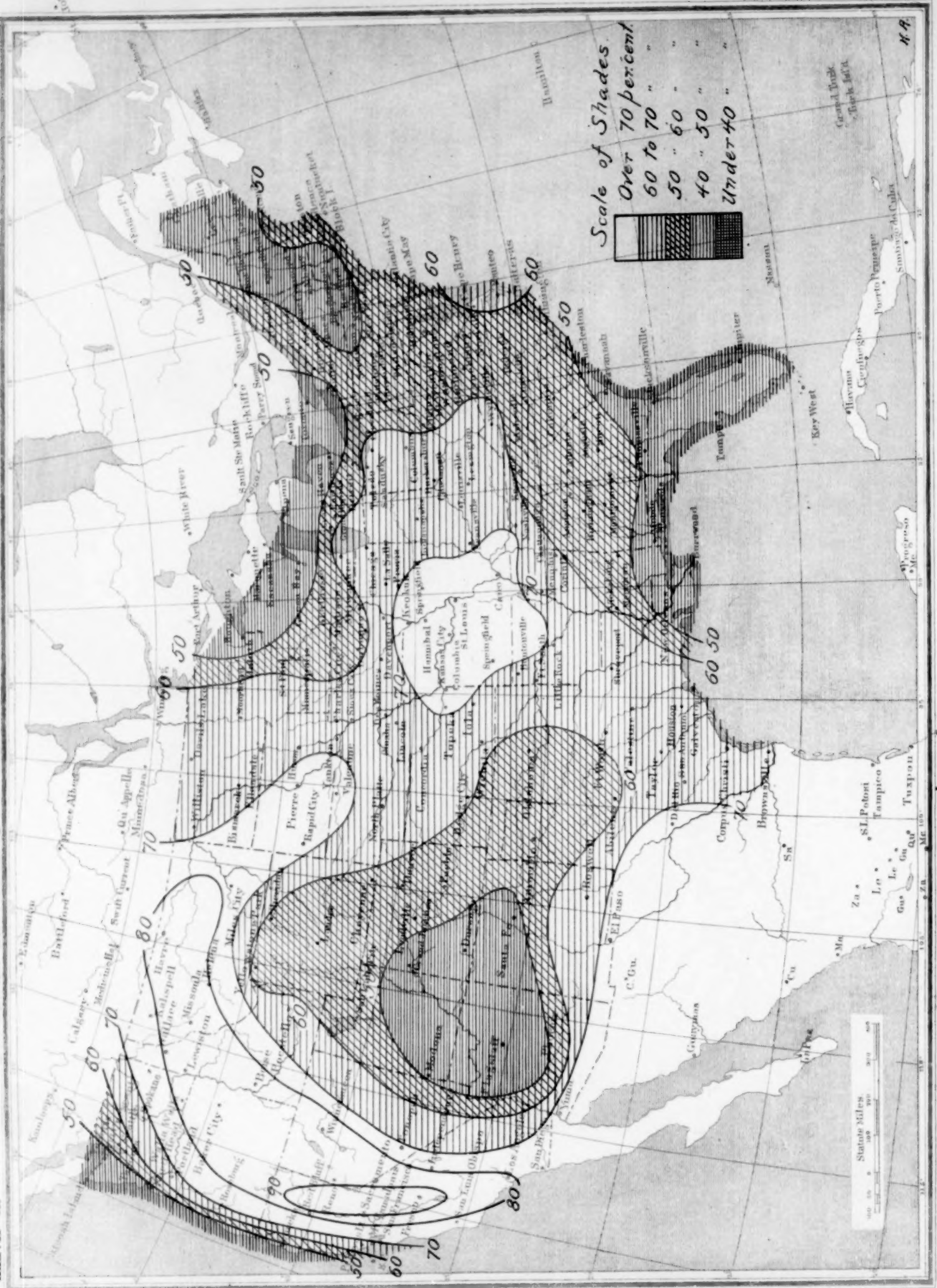




Chart V. Total Precipitation, August, 1909.



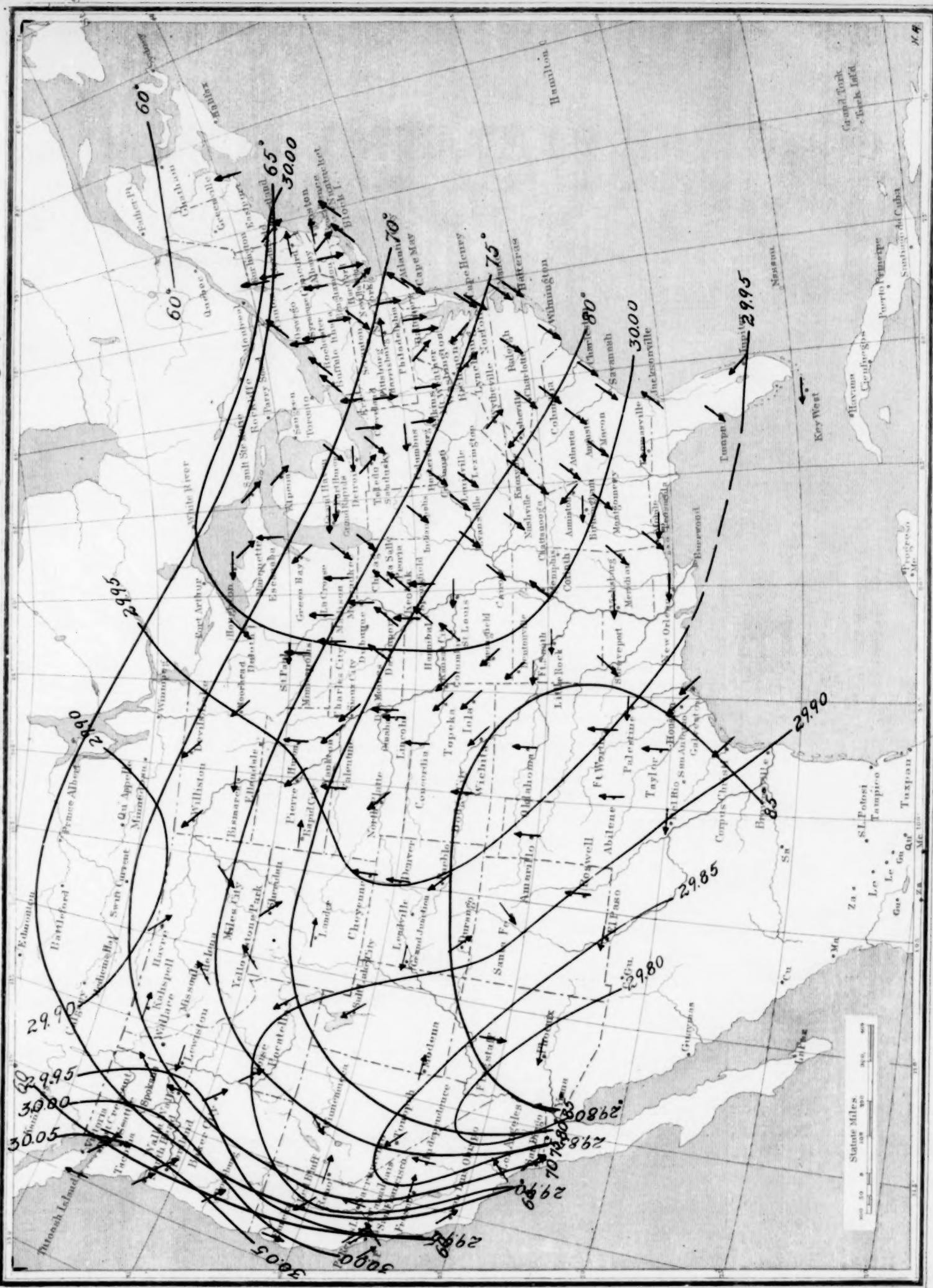
Chart VI. Percentage of Clear Sky between Sunrise and Sunset, August, 1909.





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Chart VII. Isobars and Isotherms at Sea Level; Prevailing Winds, August, 1909.



Mexico Vera Cruz